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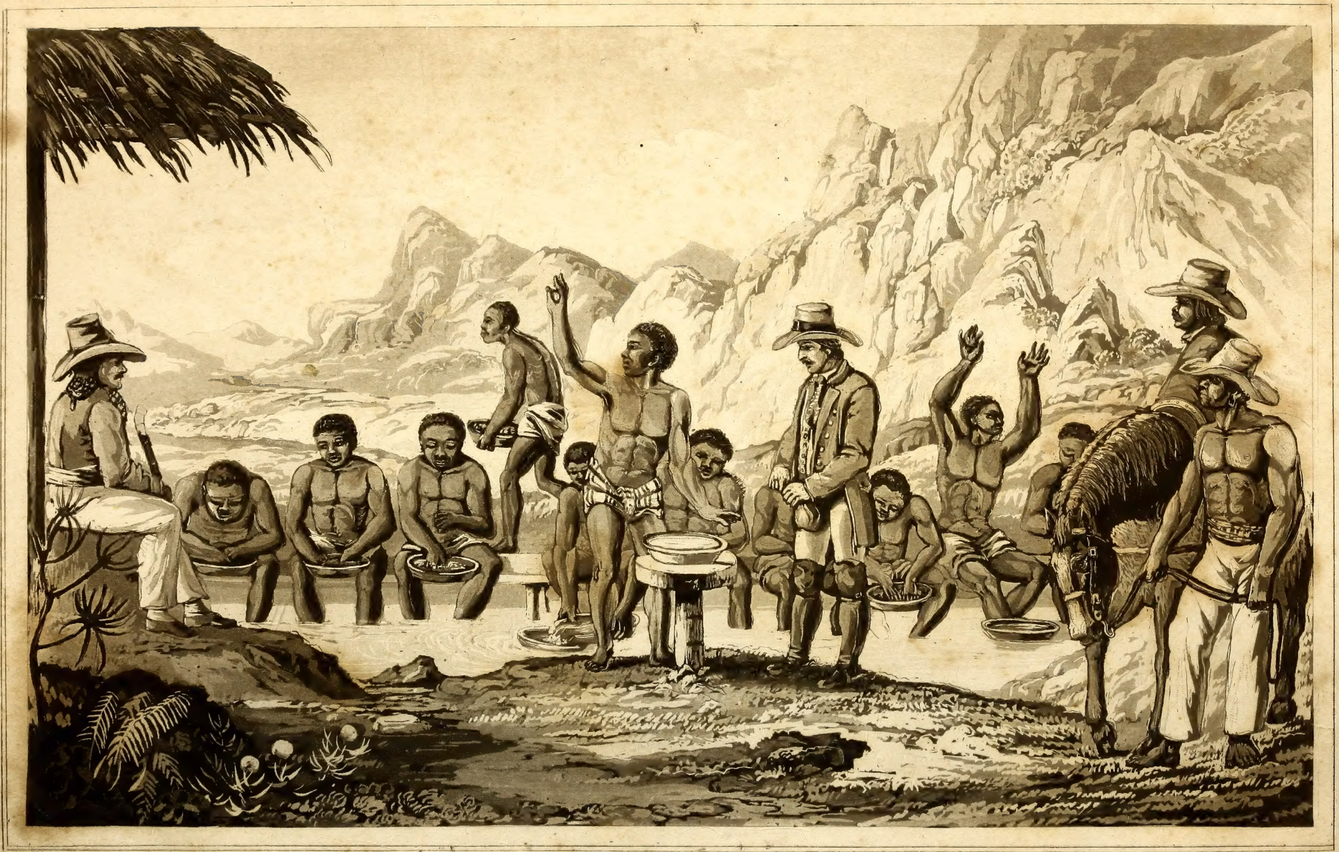

DIAMOND WASHING AT CURRALINHO.

# TRAVELS

IN

# BRAZIL,

IN THE YEARS

1817—1820.

UNDERTAKEN BY COMMAND OF

*HIS MAJESTY THE KING OF BAVARIA.*

BY

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# DESCRIPTION OF THE PLATES

IN

# THE SECOND VOLUME.

DIAMOND WASHING AT CURRALINHO...*Frontispiece.*

The negroes looking for diamonds, sit in a row on a bench in a shallow pond. Some are busy washing, in wooden bowls (*pateas, gamellas*), the gravel taken from the bed of the river; others hold up their arms, with their fingers spread, to show that they have found nothing in the bowls, which are swimming empty in the water, or they are fetching fresh gravel from the heap near them. Before the pond is a bowl with clean water, into which a negro is going to put the diamond he has just found, after holding it up between his fingers to show it. To the right and left, on a seat a little raised, and under a kind of parasol, is an overseer to watch the negroes at their work. The director, who is just arrived, puts the diamonds that have been found into a bag.

JURI and MIRANHA .......................... *To face page* 41.

Juri is the son of a cacique of the nation of the Juri, and the tribe Juri Cómas, on the Rio Puréos, which flows into the Japurá, whom we delivered from his captivity among the Miranhas, and carried with us to Munich.

Miranha is a girl of the cannibal tribe of the Miranhas, a warlike and numerous nation on the upper part of the Rio

Japurá, in the capitania of Rio Negro, on the frontiers of the Spanish province of Popayan. This young girl also accompanied us to Munich.

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Residence of several families of Coroados in the forest near the fazenda of Guidowald, on the Rio Xipoto. Some women are pounding maize in the hollowed trunk of a tree, others take the boiled flour from the pot, chew it, and put it in again, as a leaven, to prepare an intoxicating beverage. Another group, chiefly men, are employed about the fire, where the repast is prepared. Some Indians are resting in their hammocks.

FESTIVAL OF THE COROADOS ...... *To face page* 234.

A horde of Coroados beginning their drinking bout at the fazenda of Guidowald, stand round the vessel filled with the beverage, *Eivir*. The leader opens the solemnity, endeavouring, as it were, to chase the evil spirit, by rattling with his Gringcrina. He dances, stamping with his foot in triple time. The others wait till the exorcism is over, and the filled cup goes round.

RANCHO, NEAR THE SERRA DO CARACA.
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A rendezvous for travellers in Minas, at which a caravan carrying cotton, has just stopped. Some negro slaves bring wood and water and prepare the dinner, others drive the mules to pasture, arrange the baggage, or assist the Arieiro to shoe the mules. The young negro slave of the owner, who is riding up, is fixing the hammock for him. In the neighbouring building the Vendeiro is selling provisions.

# TRAVELS IN BRAZIL.

## BOOK III.

## CHAPTER I.

### STAY IN THE CITY OF S. PAULO.

At the time of our arrival, the province of S. Paulo was governed by a triumvirate, the Conde da Palma having lately left it to assume the government of Bahia, and his successor, the Baron Von Oeinhausen, the son of a German, formerly governor of Matto-grosso, not having yet arrived. According to ancient usage in these cases, the province is governed by the superior ecclesiastical, civil, and military authorities. The president of this council was Don Mattheus, a venerable old man eighty years of age, who was born in Madeira, and had received his education in France. The other members were the Brigadier of Santos and the Ouvidor of S. Paulo. We were very politely received by these gentlemen, and had, at the same time, the pleasure of meeting with our countrymen, Prince Taxis, Count Wrbna, and Count Palfy, who had been here above a week. These noblemen having had no reason to stop by the way, had travelled from Rio in a shorter time; and when we arrived, were on the point of returning to that city. We therefore could enjoy only for a short period, the satisfaction of examining the curiosities of the oldest city of Brazil in their company; a noble thirst of knowledge attracted them into the interior of the country; and the parting from them was the more painful to us, as our friend Mr. Thomas Ender, the landscape-painter, with whom we had lived in the same house in Rio, was to accompany them back to the capital.

The city of S. Paulo is situated on an eminence in the extensive plain of Piratininga. The style of architecture indicates by the frequent latticed balconies which have not disappeared here as in Rio, that it is above a century old; the streets, however, are very broad, light, and cleanly, and the houses mostly two stories high. They seldom build here with bricks, and still less with stone, but usually raise the walls of two rows of strong posts or wicker work, between which clay is rammed (*casas de taïpa*), a method which much resembles what is called the *pisé* in France. The residence of the governor, formerly the Jesuits'

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college, is built in a good style, but is now much out of repair; the episcopal palace, and the convent of the Carmelites, are large and stately edifices; the cathedral and some other churches are spacious, though the ornaments are not in good taste, but in other respects the style of architecture is very plain and ordinary. There are in the city, three monasteries, the Franciscan, Carmelite, and Benedictine; two nunneries, and two hospitals. Lieutenant-colonel Müller has erected, out of the city, a wooden circus for bull-fights as it seems, in a very good style, and has done a great service by throwing three stone bridges over the two streams Tamandatahy and Inhagabahy which unite below the town.

In the annals of Brazil, S. Paulo is highly interesting beyond all the other cities in a historical point of view. It was here that the pious Jesuit fathers, Nobrega and Anchieta, in 1552, exerted themselves to convert to Christianity a peaceable tribe of Goyanazes under their cacique, Tebireça; and after many severe trials, which obtained them the title of wonder-working benefactors, with the assistance of Portuguese colonists from S. Vicente, where there had been a factory ever since 1527, they founded the first settlement of ecclesiastics in the interior of Brazil. Many circumstances, and above all, the temperate climate and the good-natured phlegmatic character of the Indians who mingled with the Europeans, favoured the speedy progress of this colony; before a century had elapsed, we find the Paulistas already engaged in daring enterprises. Sometimes, after the mother country had become subject to Spain, inflamed with zeal for Portuguese independence and freedom, they boldly carried the war into distant Spanish provinces; sometimes, impelled by thirst for gold, they explored in all directions the wildernesses of the interior, and by their fortunate discoveries, exercised a decisive influence over the whole colony, and even the mother country itself.

The consequence of these events was on the one hand, a freer development of civil relations; and, on the other hand, internal family feuds arising from it, very nearly resembling those in the little republics of Italy in the middle ages, and a rancorous external contest, particularly with the rival colony of Taubaté; and thus, in the period of a hundred and fifty years, we see all the elements of history gradually unfolded. In this respect S. Paulo is distinguished above all other cities of Brazil, and here, more than in any other place, we find the present connected with the past. The Paulista is sensible of this, and says, not without pride, that his native city has a history of its own, which, though it goes only a few centuries back, is intimately connected with that of his neighbours. It is this circumstance especially, which ought to soften and correct the judgment which people are used to pass to the disadvantage of the character of the Paulistas. The accounts of earlier historians describe the Paulistas as a lawless tribe, resisting every legitimate constraint of custom and moral feeling, who for that very reason had renounced the dominion of Portugal, and formed a separate republic. This opinion was caused also by the reports of the Jesuits, who certainly had good grounds at that time to be discontented with the conduct of the Paulistas. Subsequently to the year 1629*, the latter frequently made incursions into the Indian colonies of the Jesuits in Paraguay, and with incredible cruelty, carried off all the natives as slaves. These plundering excursions, as well as their enterprises in search of gold to Minas, Goyaz, and Cujabá, gave to the character of the Paulistas of that time, a selfish rudeness and insensibility, and inspired them with a disregard for all relations consecrated by law and humanity, which naturally drew upon them the severest reprobation of the fathers, who were animated with enthusiastic zeal for the welfare of mankind.

This rude character is, however, now softened, and the Paulista enjoys, throughout Brazil, the reputation of great frankness, undaunted courage, and a romantic love of adventures and dangers. It is true, that in conjunction with these commendable qualities, a propensity to anger and revenge, pride, and stubbornness have remained in his character, and he is therefore feared by his neighbours: the stranger, however, sees in his haughty manner, only earnestness and an independent spirit; in his good-natured frankness and hospitality, an amiable feature; in his industry, the activity that marks the inhabitants of a temperate zone; and has less occasion than his neighbours to become acquainted with his faults. The only excuse for his pride is, that he can boast of having a claim, through the actions of his forefathers, to this new continent, which the settlers from Europe cannot adduce. There is no manner of doubt that the first comers contracted frequent marriages with the neighbouring Indians; and the complexion and physiognomy of the people indicate this mixture here, more than in the other cities of Brazil, for instance, in Maranhâo and Bahia. Many whites have, however, at all times settled here.

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* Southey's History of Brazil, ii. p. 300.

The capitania of S. Paulo, formerly called S. Vicente, was resorted to by many Spaniards; for example, after the unfortunate result of the expedition of the Adelantado Don Pedro de Mendoza, in Paraguay (in 1538—1546), and, subsequently, at the commencement of the eighteenth century, traces of whom are still preserved in several Spanish family names. Many families of Paulistas have preserved themselves without any mixture with the Indians, and these are as white, nay even whiter than the purer descendants of the Europeans in the northern provinces of Brazil. The mamelukes of various degrees, have coffee-coloured, bright yellow, or nearly white complexions; but the broad round face with high cheek-bones, the small black eyes, and a certain unsteadiness of look, betray, more or less, the Indian origin. In general, the principal characteristics of the Paulistas are a lofty, at the same time broad make, strongly marked features, expressive of a bold independent spirit, hazel eyes (they are very rarely blue) full of fire and ardour, thick black smooth hair, muscular make, firmness, and vivacity in their motions. They are justly considered as the strongest, most healthy and active inhabitants of Brazil. The strength with which they tame unbroke horses, and catch the wild cattle by means of the noose, is as surprising as the ease with which they endure continued labour and fatigue, hunger and thirst, cold and heat, wet, and privations of all kinds. In their expeditions on the inland rivers to Cujabá and Matto-grosso, they display now, as formerly, the greatest boldness and perseverance in dangers and hardships of every description; and an unconquerable love of travelling still impels them to leave their country. We accordingly find all over Brazil more single colonists from S. Paulo than from any other province. This roaming kind of life they have probably inherited from their ancestors. On the whole, the Paulistas may be said to have a melancholy disposition inclining to be choleric. They characterise thereby in some degree, in a moral view, the zone which they inhabit; for the nearer we approach the equator, the more decidedly do we find the choleric, irritable character expressed.

The women of S. Paulo have the same simplicity as the men. The tone of society is jovial and unaffected, animated by ready and cheerful pleasantry. They have been unjustly accused of giddiness. If the spirit of conversation is strongly contrasted with the refined manners of their European relatives, among whom a jealous etiquette prohibits the unrestrained expression of feeling; their artless liveliness does not excite surprise, in a province where a free and simple mode of thinking has been retained, more than in any other part of Brazil. The women of S. Paulo are of tall and slender, though not delicate make, graceful in their motions, and have in the features of their well-formed countenances an agreeable mixture of cheerfulness and frankness. Their complexion too, is not so pale as that of most of the Brazilian women, and they are on that account reckoned to be the handsomest women of Brazil.* Reflection and a disposition to subtile investigations, are said to characterise the Paulistas; and, in fact, they and the Pernambucans, can produce the greatest number of inventive geniuses and men of learning among the Brazilians. The study of divinity was formerly much promoted by the Jesuits, in whose college many men of distinguished merit were brought up. The Roman classics are diligently studied at the gymnasium, if we may call by that name the establishment for the education of young men. The study of philosophy, which was formerly taught here as in most of the schools of Brazil, according to an ancient system founded upon Brucker's Institutiones, has lately taken a new turn, since the Kantean philosophy has been rendered accessible to the Brazilian student by Viller's translation.* Antonio Ildefonso Ferreira, the second professor of philosophy, whom, after our departure from S. Paulo, we met with at the house of his father at Ypanema, had made himself pretty well acquainted with the system of the northern philosopher, and we were very agreeably surprised at finding the terms and ideas of the German school naturalised on American ground. Thus the more temperate southern zone of the new continent, in consequence of the rapid progress of civilisation, adopts not only the practical branches of study and knowledge, but even the more abstract lucubrations of pure science. The diffusion of pure philosophy has been more speedy for some centuries from one hemisphere to another, than it was formerly from Egypt to Greece, and from Greece to Rome. The only library of the city, besides that of the Carmelites, belongs to the venerable bishop, who, although very far advanced in years, still takes a lively interest in scientific subjects, and showed it to us himself with an expression of great pleasure. It contains a great number of historical and canonical works, and ancient classics, and materially contributes to the instruction of young ecclesiastics, who study several years at the theological seminary, till they have received ordination, in conferring which, they are said not to be so strict here as in Rio, Pernambuco, and other places.

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* A popular proverb describing the character of several provinces, extols the women of S. Paulo above all others. It says, at Bahia are to be praised *Elles nâo Ellas*, in Pernambuco *Ellas nâo Elles*, in S. Paulo *Ellas e Ellas*.

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* Which however, in truth, is but a poor exposition of the system of the German philosopher. *Trans.*

The population of the city of S. Paulo, according to the latest accounts, including the dependent parishes, amounts to above 30,000 souls, of which the half are whites, or such as are called so, and the other blacks, or people of colour. The whole population of the capitania of S. Paulo by the latest official accounts annexed at the end of this chapter *, was, in the year 1808, 200,478; in the year 1814, 211,928; and in the year 1815, 215,021 souls. The table of population shows very striking results with regard to the proportion of the births. In general, one birth is reckoned for twenty-eight

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* See Note 1. page 32.

individuals; and the highest known proportion is said to be that of 1 : 22. 7 in fifteen villages about Paris, and 1 : 23.5 in thirty-nine Dutch villages; but here there is one birth to twenty-one individuals. The mortality is to the population as one to forty-six, a proportion which is smaller, though not in so remarkable a degree as in the country among us. The black slaves have very few children, which is not entirely explained by the proportion of the female to the male slaves (16 : 22). One cause may be, that the male slaves, being almost always employed in the labours of agriculture, and tending the cattle, pass the greater part of the year alone in the remote *charcaras* and *fazendas de criar gado*, whereas the female slaves are employed in household services. As we found it impossible to obtain an authentic account of the number of negro slaves annually imported into the capitania, we do not venture precisely to state the progression in the increase of this part of the population. So much, however is certain, that very few provinces of Brazil, for instance, Rio Grande do Sul and Rio Negro, receive a smaller number of slaves from Africa; the others, on the contrary, many more. It is said to have been observed, that the cold mountain air, and still more the cool nights, which are usual in a great part of the province, are injurious to the health of several of the negro tribes who have been accustomed to a warmer climate. Those who come from the high mountain pastures to the west of Benguela, are said to become the most easily used to the climate.

The taste for European luxuries has by no means made so much progress among the inhabitants of S. Paulo as with the more opulent citizens of Bahia, Pernambuco, and Maranhâo. Convenience and cleanliness are more attended to than elegance and splendour in their household arrangements; and instead of the light North American furniture and French looking-glasses, which are seen in the other provinces, we found in the parlours (*sala*) only a row of heavy chairs, venerable for their antiquity, and a small glass, which, from its Nürenberg frame, the German recognises for a countryman. Instead of large glass lamps and wax tapers, a brass lamp stands upon the table, in which they usually burn castor oil. In the tone of society too, we equally remarked the proportionably smaller influence of Europe. Cards are much less frequently called in as a resource than in the other capitanias, but the louder is the conversation, which alternates with singing and dancing.

During our stay, a bull fight was given in the circus. They procure the bulls from the south of the province, particularly from Curitiba, where they have remained sufficiently wild from roaming at large in the extensive pastures. On this occasion, the animals did not seem to be very courageous, and the matadores (mostly people of colour) were inferior in address and spirit to their Spanish colleagues. This diversion is besides foreign to the Portuguese character, and in a country where nature arms so many powerful enemies against man, the people see, with double regret, this useful domestic animal devoted to such a cruel sport. At that time there were also theatrical entertainments at S. Paulo. In the theatre, which is built in a modern style, we saw the French opera of the Deserter performed in the Portuguese language. The representation was worthy of those times when the theatrical car of Thespis first passed through the streets of Athens. The actors, all blacks or mulattoes, were of that class to whom Ulpian gives "levis notæ maculam." The principal actor, a barber, deeply affected his fellow-citizens. We could not be surprised that the music resembled a chaos of elementary sounds, because, except their favourite guitar to accompany the voice, scarcely any instrument was properly played. The taste of the Paulista for singing, is more cultivated. Mr. Dankwart, a Swedish captain who has settled here, introduced us one evening to a party, where we were entertained with music, which gave us a very favourable opinion of the musical talent of the women of S. Paulo. Their singing is very simple and unaffected, and with the compass of their not very powerful voices, which are a high tenor, is entirely in the spirit of pastoral poetry. The national songs are of Portuguese or Brazilian origin. The latter are superior to the former from the natural style of the text and the melody; they are perfectly in the popular taste, and sometimes indicate a truly lyrical talent in the poets, most of whom are anonymous. Slighted love, the torments of jealousy, and the pangs of absence, are the subjects of their muse; and a poetical allusion to nature gives to these effusions a peculiar relief, which appears the more pleasing and true to a European, the more he feels himself placed in a poetical mood by the riches and tranquil enjoyment which nature breathes around.

The whole province of S. Paulo is a land peculiarly adapted for the breeding of cattle. It possesses the most extensive plains, on which all kinds of cattle, but particularly oxen, horses, and mules, thrive exceedingly well. If we reckon that of the 17,500 square miles which the capitania contains, only 5000, or two seventh parts of the whole surface, are covered with wood, and 12,500 square miles with meadows and pastures, there would be for a family of five persons $\frac{116}{1000}$ of a square mile of wood which may be used for agriculture, and $\frac{292}{1000}$ of a square mile of pasture proper for cattle. As soon as the province shall be more peopled, particularly in the interior, the productions of agriculture and of the herds will be brought to a suitable proportion; at present, especially along the coast, and in places which are adapted to the sugar-cane and other colonial articles, where the population is the most numerous, the produce of agriculture is almost as four to one. If we calculate according to the annexed official table*, the whole amount of agricultural produce in the year 1814 at 1,005,764,440 rees, only 178,678,800 rees were derived from the cattle. In proportion to the population of S. Paulo, the quantity of colonial articles is much less than in the more northern provinces, for cotton and coffee do not thrive very well in this latitude, and sugar but indifferently. It is true, that in the official lists in 1808, no less than 458 sugar-mills are enumerated, and 601 apparatus for distilling brandy from the sugar-cane; but many of those mills prepare only as much sugar or treacle as the owners require for their own use, and the stills of several fazendas are so inconsiderable that they cannot make more than a few measures of rum. Such small stills are met with in most of the 190 fazendas, which are chiefly grazing farms (*fazendas de criar*), as necessary domestic utensils, so far as their situation permits the cultivation of the sugar-cane. Half of the productions of the capitania are required for home consumption, the other is exported by water as well as by land. Colonial articles, properly so called, as coffee, sugar, tobacco, rum, some cotton, copaiva oil, hides, horns and horn tips, tallow, &c., go either directly, or by way of Rio de Janeiro, to Europe. The mandiocca is seldom cultivated here, but maize to a great extent. The inhabitants of this province conceive the mandiocca flour to be unwholesome, as those of the northern capitanias do maize flour. Much maize and other provisions are sent to Rio for the consumption of that city; sugar and rum to Rio Grande do Sul, Monte Video, and Buenos Ayres; and to Pernambuco, Ceara, Maranhâo, particularly, meat dried in the sun or salted (*passoca*). Besides foreign articles, Goyaz and Matto-grosso receive, also, salt and iron from S. Paulo.

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* See Note 2. page 34.

Santos is the only harbour of the province which has a direct intercourse with Oporto, Lisbon, and the Portuguese islands; though it is only twelve leagues distant from the capital of S. Paulo, it is as much cut off from it by the high and steep chain of the Serra do Mar, which extends from the Morro Formoza along the coast to the south, as if it were fifty miles from it. The way over the Cubatâo, so this part of the mountain is called, is stated to rise in some points more than three thousand feet above the level of the sea, is extremely steep, and only passable for mules. Though it was greatly improved by the governor-general, Franca e Horta, it still does not allow the productions of the country to be exported otherwise than divided into small burdens, and the imported articles must be introduced in the same manner. Great expense and labour are required to bring to the capital merely a bell or some heavy cannon. The two other seaports of the province, Paranagua and Cananea, are both inconsiderable; the former is fifty-eight leagues, and the other sixty-seven leagues, from S. Paulo. They supply the district of Curitiba, which is properly the meadow-land of the province, with the necessaries which they obtain by sea from Santos, Rio, or the ports on the northern coast, whither they repair with large barks and schooners. Their export trade is even more limited than that of Santos to flour, hides, dried meat, and *matte*, or Paraguay tea. The latter is an article of daily use among the people of the southern part of this province, as also in Rio Grande do Sul, and in the countries on the Rio de la Plata. It is prepared out of the dried and pulverised leaves of a shrub (*Cassine Gongonha*, nob.), the infusion of which they usually suck through a small tube, to which a little strainer is fastened. From this sketch of the trade of S. Paulo, which we farther illustrate by the annexed tables*, it appears that the proportion of pecuniary wealth must be much smaller here than in the northern provinces, where an extensive and profitable trade has brought in its train a propensity to extravagance and luxury. Even in the capital there is almost a scarcity of current coin, to which the inhabitant of the province is still more indifferent, because, living in patriarchal simplicity, he is a stranger to many European wants, and considers himself as richer in the produce of his great herds, than by the introduction of European money and European luxuries.

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* See Note 3., &c. p. 35.

The state of the manufactures in S. Paulo, perfectly corresponds with that of trade. The domestic manufacture of coarse woollens, for the clothing of the country people, and common white beaver hats, are the only ones known here. The wealthiest graziers tan a considerable part of the hides themselves, or salt them raw for exportation. As in Rio de Janeiro, they use for tanning, the bark of the *Rhizophora Mangle.* The necessary workmen are on the spot, though not always very skilful or regularly trained. A few months before our arrival, a government manufactory for arms, which had before been established at Rio de Janeiro, was transferred hither and placed under the superintendence of Lieutenant-colonel Müller. The eight working masters were all Germans, and had been brought several years before from the manufactory at Potsdam. They had under their direction some mulattoes and negroes, whom they represented as docile and clever, but on account of their laziness and inattention, the very antipodes of German ability. One of our fowling-pieces which had become unserviceable on the way, in an engagement with a large serpent, was very well repaired by a black workman. They in general use English steel, or such as is made here on the spot, from Soracaba iron. The articles manufactured here are indeed very good, but they cost the government as much as European arms, from the want of demand and the small number of workmen, by a judicious employment of whom the business might be properly organised. The establishment is, however, useful and important as a school for the national industry.

The bishop, Don Mattheus de Abreu Pereira, amuses himself in his garden in breeding silkworms, which easily multiply and produce an extremely beautiful thread. As the mulberry tree comes to great perfection in this climate, it may be confidently expected that the culture of silk will be carried on with great success. There is besides in this country another species of silkworm, which is found in abundance on a laurel-like shrub, particularly in Maranhâo and Pará. This worm, whose thread promises a much more brilliant silk than that of Europe, has never yet been employed, although it might be with great facility. But what might become a still more profitable branch of cultivation, is the cochineal; for the *Cactus coccinellifer*, with the insect peculiar to it, is found in many parts of the province of S. Paulo, particularly in sunny meadows. But the aversion of the inhabitants to undertaking laborious work, while they can gather other rich gifts of nature without trouble, may for the present check the propagation of the cochineal plant.

The environs of S. Paulo are beautiful, and of a more rural description than those of Rio. Instead of the sublime prospect of the sea and stupendous mountains which rise there in picturesque forms, the stranger has here an extensive view of a country where alternate hills and valleys, light woods, and pleasant pastures present all the softer charms of nature. Added to the happy climate, the beauty of the scenery has perhaps given the Paulistas a turn for laying out gardens, of which there are several very pretty ones in the vicinity of the city.

Besides the native fruits, the gujava, guabiroba, grumbijama, jabuticaba, acaju, &c.; they cultivate also water-melons, oranges, figs, and other European fruits. Quinces, cherries, peaches, and several kinds of apple thrive particularly well. Successful trials have also been made with walnuts and chestnuts; the vine and the olive on the other hand seem to disdain their new country, or not yet to have been treated in a proper manner. The grapes which we tasted had an acid flavour; perhaps the soil is too strong and moist for the vine. The olive hardly ever bears fruit, perhaps because the season for its ripening falls exactly in the wet months. European kitchen herbs grow admirably; the onions of S. Paulo, like those of S. Catherine, are celebrated for their size and abundance. Though the difference of the seasons is very sensible here, and manifests itself in the development of the flowers and the maturing of the fruits, yet it seems to have no influence on the formation of the wood. Here, as immediately under the line, the wood is of the greatest compactness and without any traces of rings marking the age.

The geognostic nature of the country in the neighbourhood of the city offers but little variety. The predominant formation is a sand iron-stone, and in which there are often fragments of a white quartz, partly round, partly angular, and which is therefore a kind of breccia. At an inconsiderable depth this rock rests on the gneiss-like granite, rarely basking out, and with which the streets of the city are partly paved. Between and over it, are several layers of lithomarge of a brick and brownish red, ochre yellow, and lavender blue, just as they are seen here and there along the road from Rio; for instance at Paranangaba. These fossils belong to a very extended formation, which we again met with in many places in Minas Geraës, and which everywhere contains gold. The metal is disseminated in larger or smaller grains through the mass, particularly of the ferruginous cement. These gold mines were formerly much worked, not only in the immediate vicinity, but particularly in the mountains of Jaraguá, two miles to the south of this town. According to Mawe's statement, the poor collect the gold, which after heavy rains is washed out of the pavement of the streets. The smelting house of S. Paulo used to furnish a considerable quantity of gold, but this establishment is now broken up, and the little metal found here must be carried to one of the smelting houses in Minas. The Paulistas have lost their inclination for mining, or rather, it seems that that part of the inhabitants who felt an attachment to that precarious occupation, have gradually emigrated to the richer provinces of Minas, Goyaz, and Matto-grosso. Those who remained, happy enough to forget the metallic riches under their feet, dedicate themselves exclusively to the more secure employments of agriculture and the tending of cattle.

The climate of S. Paulo is one of the most agreeable in the world. Both the situation, it being almost under the tropic of Capricorn, which is distant from it only a mile and a half to the north, as well as its elevation of twelve hundred feet above the surface of the sea, at Santos, give the city all the charms of a tropical climate without any considerable inconvenience from the heat. During our stay the thermometer fluctuated between 15° and 18° R., and the hygrometer between 67° and 70°. According to the account which we obtained from our countryman, Mr. Müller, and some other inhabitants, the mean temperature of the year is from 22° to 23° of the centigrade thermometer. The difference of the temperature during the winter (May to September) and the summer, or rainy months (October to April), is more considerable than in the provinces lying farther northward. Hoar frost is not uncommon during the cold season, though not in the immediate vicinity of the city, yet in the higher parts of the country; but the cold never becomes so intense and continued as to make it necessary to put up stoves in addition to the chafing-dishes which are in general use. On the large plains which extend to the west and south of the capital, the winds are observed regularly to blow from a certain quarter, according to the position of the sun. Thus, when it is in the northern signs of the zodiac, S.S.W. and S.E. winds prevail: when it returns to the south, the winds are less constant. The rainy season commences along the coast, as in Rio de Janeiro, with the months of October or November, and continues till April; the most rain falls in January. In this month, when we resided in the city, we often saw in the morning the neighbouring hills covered with a thick and very cold fog, which did not disperse till towards the hour of noon, when the sun broke through it. In the interior of the country, in the *Sertôes*, the wet season sets in later. At the beginning it rains only in the night, then in the afternoon also, and lastly, alternately by day and night, and sometimes very heavily for several days, and even weeks, without intermission.

At the time that the united Portuguese and Spanish commission of demarcation, which determined the frontiers of the dominions of the two kingdoms, and the southern division of which, on the Portuguese side, had its head-quarters here, the geographical position of this city was accurately determined by Oliveira Barbosa to be as follows: 33° 24′ 30″ longitude from Ferro, and 23° 33′ 30″ south latitude (48° 59′ 25″ west longitude of Paris, and 23° 33′ 10″ south latitude, according to the Board of Longitude). Observations on the variation of the magnetic needle were made both here and in other parts of the province, several of the results of which were communicated to us at Rio by General da Franca e Horta, formerly governor of the capitania. In the year 1788 the variation at S. Paulo was 7° 15′ N.E. We are indebted to the Jesuits for the first observations of this kind, as well as the first determinations of latitude.*

The character of diseases at S. Paulo is remarkably different from that at Rio, which may arise from the difference both in the constitution of the inhabitants and in the climate. We found here, more frequently than in the northern provinces, disposition to rheumatism and inflammation, especially of the eyes, breast and throat, and in consequence of them pulmonary and trachæal consumptions, blennorhœa of the eye-lids, &c. Gastric diseases, on the other hand, are not so common, and that weakness of the organs of digestion as well as heartburn, which appears to increase together with the heat, and becomes almost the general habit in the inhabitants of countries lying nearer to the equator, is wanting here. Diseases of the liver are not very rare; they seem to have their chief foundation in the melancholy or choleric temperament of the Paulistas, and, probably, the mixture with the Indian race is not without its influence; for it is very singular that the constitution of the aboriginal American so greatly promotes diseases of the liver and the spleen. We frequently see in them a callosity and enlargement of these organs, or stagnation of their powers, and though we may consider the neglect of their bodily sufferings as one cause of the malignity which these disorders often acquire, yet the specific modifications of the action which the system of the vessels, the liver, and the skin, assume in the Indian race, may likewise have a considerable share in the peculiar character of diseases as they appear in them and their descendants. The cutaneous system suffers less here than in the northern provinces; hence we see fewer pimples, chronic eruptions, and sarna. Intermitting fevers, too, are rare at S. Paulo, and when they do occur, they frequently proceed from catarrh and rheumatism, which are induced by the inferior degree of warmth, and the rapid changes in the temperature. Goitres, of which we have already spoken as an endemic disease in the neigbourhood of the Paraiba, are not common in the city, nor do they attain the monstrous size which they acquire in that country. Besides inflammation, dropsy is very general; the tropical climate seems, indeed, particularly to favour the issue of inflammations by dropsy.

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* According to these observations the variation is at Itanhaím 7° 25′; at Santos 6° 50′; at Ubatúba 6° 30′; at S. Sebastiâo and in Villa Bella da Princesa 6° 45′; at S. Vicente 6° 50′; at Cananea 7° 57′; Guaratyba 8° 30′: at Iguape 7° 30′; at Paranaguá 8° 8′.

The capitania of S. Paulo, formed, under the reign of King John V. (1710), out of that of S. Amaro and part of that of S. Vicente *, was formerly divided into two circles (*comarcas*), namely, into that of S. Paulo, with the capital of the same name, and that of Paranaguá or Curitiba. The population increasing, the comarca of Ytú (Hytú), the capital of which is the little town of Ytú, was separated from the comarca of S. Paulo about ten years ago. In the southern circle, the seat of the authorities has been transferred from Paranaguá to Curitiba, which is situated further inland. The chief magistrate of every comarca is the ouvidor. Except in the district in which the governor resides, he is at the head not only of the judicial department, but also of the administration, and has the first voice next to the governor in the board of finances (*Junta da Real Fazenda*). In affairs relative to the exchequer, the chief judge (*Juiz de Fôra*) is associated with him as fiscal for the crown. In the city of S. Paulo, and in the several towns of the province, there is a municipality exactly as there is in Portugal, the peculiar office of which is to manage all affairs relative to the civil administration of the town. The members of this tribunal are chosen by the citizens out of their own body; it consists of a judge (*Juiz da Camara*), several assessors (*Vereadores*), a secretary (*Escribâo da Camara*), and a treasurer (*Thezoureiro*). On important occasions, the juiz de fôra attends the sittings of the chamber. He is likewise in most towns the president of the board for the administration of the affairs of orphans (*Juiz dos Orfâos*). The direction of the charitable institutions is in the hands of the municipality. A similar arrangement prevails in all parts of Brazil. In the year 1808, the capitania of S. Paulo, with the population of 200,478 souls, had 418 ecclesiastics, of whom 331 were regular, residing in fifteen convents, the remaining 87 were secular. There were two convents of nuns, in which there were 53 persons. This proportion has not augmented since that time, and the government does not seem disposed to favour the restraints of the cloister, which are so prejudicial to the population. On the other hand, it has very carefully promoted the organisation of the armed force in the province. The troops of the line consist of one regiment of dragoons and one of infantry, which are distributed along the coasts and in the capital, and some points in the interior, especially at the frontier custom-houses, and as detachments against the savage Indians. The males of the remaining population who are able to bear arms, serve either in the regular militia (*milicias*), of which there are three regiments of cavalry and eight of infantry, or in the local militia (*ordenanzas*). The militia are bound to perform military service, not only within the limits of the capitania, but in case of need to go beyond the frontiers. The local militia must not leave the place of their abode. It includes, with the exception of the public officers, every male from the age of sixteen to sixty who is not already enrolled in the troops of the line or the regular militia.

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* Cazal. Corografia Brasilica, i. p. 200.

This local militia constitutes the real defence of the whole nation, and is chiefly employed in maintaining internal order. Like the regular militia, it is called together to exercise from time to time, but its chief use is to keep up a certain military order in the people, and to execute with energy the resolutions of the civil magistrates, which they would never be able to do of themselves in a country so thinly peopled. The capitania of S. Paulo has 157 companies of local militia. The chief officers of these troops are the capitâos môrs, as it were colonels, and communicate directly with the government upon many affairs, for instance, those of the internal police. The highest officers of the regular militia are called Colonels (*Coroneis*). The jurisdiction of these officers is entirely distinct.

The regular militia may be tried by a court-martial, even for offences which are not of a military nature, which they themselves generally prefer, to the proceedings of the civil tribunals. The local militia, on the other hand, are subject to the civil courts. It certainly was the intention of the government in establishing the local militia, that they should serve to awaken and maintain a warlike spirit among the mass of the people; hitherto, however, they do not seem to have effected this purpose, and in point of fact, the confidence of the individual in his arms, and the assurance of being able to use them with advantage in his own concerns, has been more promoted than the patriotic feeling of being able to employ them with success when his country is in danger. The militia of S. Paulo, however, enjoy the reputation of a military public spirit, which they have also confirmed in the late enterprise against Buenos Ayres. Both these establishments, of the regular and local militia are particularly to be recommended in a young and poor country, because they are managed by their own resources. The officers of these two corps receive no pay from the state, with the exception of the majors of the militia, who are always officers of the line, and direct the military manœuvres.

The capitania of S. Paulo is not able to meet the expenses of the administration out of its own taxes, but requires an annual addition 60,000,000 of rees. Since the arrival of the king, who with paternal care wished to introduce throughout the whole country a more strict and prompt administration of justice, a more uniform collection of the taxes, a more extensive, and therefore more expensive national education, the disbursements of the province have been increased, but the revenues, the most important sources of which are the export duties on colonial produce, and the tax upon trades, have not been augmented in the same proportion. The Portuguese government has experienced the same result in many other places, which seems to indicate that the proper and happy organisation of an infant country, rather depends on the increase of the population, than on that of its trade and its internal riches. There is perhaps no province of Brazil, in which such solid and promising foundations for the prosperity of its future inhabitants have been laid as here, where the nature of the soil and the climate offer inexhaustible resources of wealth. If the Swiss colony, the establishment of which in Canta-Gallo, has cost great sums without a suitable result, had been placed in S. Paulo, in the cool plains, which are peculiarly adapted for the breeding of cattle, it would most certainly have prospered; but the intention of the government speedily to recover its expenses by the receipt of export duties on the colonial articles raised by the settlers, appears to have opposed the promotion of a slow but certain and profitable cultivation of the country by the breeding of cattle.

A very useful establishment, which likewise originated with the settlement of the court at Rio, is a regular post from S. Paulo to the capital, by means of messengers on horseback or on foot, who duly deliver within a fortnight, the sealed bags of letters which are intrusted to them by the royal post-office. Since a Portuguese corps has been stationed in the more southern parts of Brazil, a regular post has been established between S. Paulo and Monte Video.

## NOTE 1.—List of the Population of the Capitania of Saint Paul, in the Year 1815.

| | PLACES. | Founded in the Year | Parishes. | Houses. | WHITES. | | BLACKS. | | | | MULATTOES. | | | | Total. | Births. | Marriages. | Deaths. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Free. | | Slaves. | | Free. | | Slaves. | | | | | |
| | | | | | Males. | Females. | Males | Females. | Males. | Females. | Males. | Females. | Males. | Females. | | | | |
| Comarca de S. Paulo. | Cidade de S. Paulo, | 1560* | 12 | 4142 | 5822 | 6452 | 360 | 485 | 2215 | 2158 | 2659 | 3580 | 749 | 833 | 25313 | 703 | 262 | 569 |
| | Villa de S. Vicente | 1531 | 1 | 100 | 83 | 107 | 40 | 40 | 97 | 91 | 50 | 60 | 25 | 16 | 609 | 31 | 1 | 14 |
| | Santos - - - | 1546 | 1 | 689 | 647 | 704 | 101 | 161 | 1662 | 618 | 562 | 779 | 180 | 219 | 5133 | 215 | 67 | 205 |
| | Itanhaem - - | 1561 | 2 | 195 | 162 | 143 | 6 | 7 | 22 | 9 | 252 | 321 | 104 | 99 | 1125 | 48 | 6 | 25 |
| | Mogi das Cruces - | 1611 | 4 | 1445 | 2118 | 2419 | 47 | 43 | 559 | 500 | 704 | 920 | 174 | 221 | 7705 | 259 | 92 | 123 |
| | Paranaiba - - | 1625 | 4 | 1081 | 1343 | 1606 | 58 | 79 | 696 | 650 | 772 | 1047 | 176 | 182 | 6609 | 377 | 121 | 148 |
| | S. Sebastiâo - - | 1636 | 1 | 575 | 845 | 892 | 22 | 29 | 609 | 453 | 302 | 369 | 151 | 179 | 3851 | 194 | 42 | 98 |
| | Uhatuba - - | 1638 | 1 | 507 | 977 | 1049 | 9 | 19 | 257 | 227 | 121 | 140 | 55 | 65 | 2919 | 164 | 32 | 71 |
| | Taubaté - - - | 1640 | 2 | 1819 | 2815 | 3701 | 19 | 35 | 709 | 642 | 402 | 601 | 173 | 196 | 9293 | 271 | 140 | 126 |
| | Guaratinguetá - | 1651 | 1 | 966 | 1807 | 2174 | 23 | 30 | 829 | 649 | 256 | 373 | 184 | 175 | 6500 | 777 | 62 | 298 |
| | Jacarehy - - | 1653 | 2 | 1262 | 1360 | 1296 | 12 | 25 | 428 | 352 | 1283 | 1501 | 29 | 48 | 6334 | 304 | 122 | 106 |
| | Jundiahy - - | 1656 | 1 | 849 | 906 | 897 | 39 | 33 | 668 | 497 | 824 | 1025 | 84 | 88 | 5061 | 144 | 52 | 91 |
| | Pendamonhangaba - | 1713 | 1 | 759 | 1444 | 1539 | 23 | 26 | 637 | 445 | 251 | 263 | 112 | 119 | 4859 | 155 | 62 | 52 |
| | S. Jozé - - - | 1767 | 1 | 589 | 854 | 965 | 7 | 8 | 62 | 48 | 322 | 410 | 68 | 66 | 2810 | 118 | 98 | 45 |
| | Athibaya - - | 1779 | 2 | 1521 | 2338 | 2409 | 60 | 56 | 560 | 456 | 646 | 731 | 275 | 271 | 7802 | 242 | 51 | 54 |
| | S. Luiz de Paraitinga | 1773 | 1 | 504 | 1126 | 1164 | 1 | 4 | 506 | 254 | 170 | 211 | 51 | 57 | 3544 | 133 | 50 | 51 |
| | Cunha - - - | 1785 | 1 | 372 | 606 | 585 | 12 | 21 | 775 | 425 | 209 | 213 | 103 | 90 | 3039 | 45 | 10 | 51 |
| | Lorena - - - | 1788 | 4 | 1847 | 3417 | 3593 | 83 | 89 | 1577 | 1019 | 969 | 1002 | 190 | 197 | 12136 | 676 | 167 | 313 |
| | Nova Bragança - | 1797 | 1 | 1842 | 3311 | 3621 | 5 | 4 | 308 | 290 | 664 | 1040 | 212 | 198 | 9853 | 288 | 57 | 74 |
| | Villa bella da Princesa | 1806 | 1 | 399 | 610 | 697 | 11 | 12 | 612 | 444 | 136 | 195 | 70 | 62 | 2854 | 118 | 14 | 72 |
| | In one city and 19 towns (villas), Total - | | 44 | 21463 | 32591 | 36013 | 938 | 1026 | 13297 | 10223 | 11754 | 14781 | 3165 | 3318 | 127349 | 5152 | 1568 | 2586 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Comarca de Paranaguá & Curitiba. | Curitiba - - | - 1654 | 3 | 1783 | 2589 | 2925 | 82 | 132 | 540 | 554 | 1192 | 614 | 244 | 250 | 9122 | 492 | 180 | 121 |
| | Paranaguá - | - 1640 | 1 | 1058 | 1858 | 1967 | 174 | 188 | 357 | 327 | 249 | 292 | 177 | 212 | 5801 | 406 | 106 | 182 |
| | Cananea - | - 1587 | 1 | 242 | 273 | 275 | 65 | 76 | 228 | 223 | 152 | 201 | 41 | 58 | 1592 | 50 | 18 | 26 |
| | Iguape - - | - 16— | 2 | 939 | 1906 | 1850 | 416 | 462 | 687 | 433 | 107 | 106 | 292 | 283 | 6542 | 251 | 181 | 164 |
| | Guaratuba - | - 1771 | 1 | 110 | 62 | 71 | 0 | 1 | 40 | 46 | 10 | 3 | 199 | 231 | 663 | 11 | 8 | 1 |
| | Lages - - | - 1774 | 1 | 116 | 240 | 275 | 23 | 37 | 54 | 41 | 159 | 167 | 25 | 14 | 1035 | 94 | 10 | 8 |
| | Castro - - | - 1781 | 1 | 682 | 1319 | 1450 | 27 | 50 | 429 | 363 | 365 | 463 | 167 | 198 | 4831 | 171 | 44 | 26 |
| | Antonina - | - 1797 | 2 | 662 | 419 | 424 | 164 | 129 | 212 | 199 | 1021 | 1092 | 92 | 152 | 3904 | 218 | 27 | 95 |
| | Villa Nova do Principe | 1806 | 1 | 408 | 778 | 788 | 15 | 18 | 123 | 124 | 222 | 191 | 47 | 45 | 2351 | 148 | 20 | 36 |
| | In nine towns, | Total - | 13 | 6000 | 9444 | 10025 | 966 | 193 | 2670 | 2310 | 3477 | 3129 | 1284 | 1443 | 35841 | 1841 | 594 | 659 |
| Comarca de Ytú. | Ytú - - | - 1654 | 1 | 807 | 1454 | 1622 | 51 | 88 | 1867 | 1047 | 257 | 364 | 142 | 145 | 7037 | 502 | 189 | 318 |
| | Soracaba - | - 1670 | 1 | 2011 | 3120 | 3760 | 41 | 44 | 934 | 736 | 546 | 763 | 210 | 237 | 10391 | 583 | 128 | 395 |
| | Itapeva - - | - 1769 | 1 | 472 | 615 | 556 | 18 | 6 | 94 | 83 | 522 | 558 | 26 | 34 | 2415 | 115 | 22 | 18 |
| | Mogi Mirim - | - 1769 | 5 | 1912 | 3891 | 4006 | 33 | 37 | 891 | 583 | 746 | 785 | 152 | 175 | 11299 | 782 | 185 | 181 |
| | Apiahy - - | - 1770 | 1 | 201 | 145 | 152 | 87 | 82 | 247 | 170 | 231 | 252 | 88 | 88 | 1537 | 58 | 27 | 55 |
| | Itapeteninga - | - 1770 | 2 | 892 | 1032 | 1140 | 10 | 13 | 197 | 149 | 1299 | 1456 | 40 | 54 | 5390 | 354 | 116 | 167 |
| | S. Carlos - | - 1797 | 1 | 711 | 858 | 902 | 1 | 3 | 1185 | 625 | 904 | 878 | 36 | 9 | 5401 | 380 | 178 | 161 |
| | Porto-feliz - | - 1797 | 3 | 1108 | 1943 | 1934 | 65 | 84 | 1532 | 882 | 744 | 839 | 158 | 180 | 8361 | 339 | 113 | 146 |
| | In eight towns, | Total - | 15 | 8304 | 12958 | 14072 | 306 | 357 | 6950 | 4275 | 5249 | 5895 | 847 | 922 | 51831 | 3113 | 958 | 1391 |
| | In one city and 36 towns, Total Amount | | 72 | 35767 | 54993 | 60110 | 2210 | 2656 | 22917 | 16808 | 20480 | 23805 | 5296 | 5746 | 215021 | 10106 | 3120 | 4636 |

Population in the Year 1808, 200,478.—In the Year 1813, 209,219.—In the Year 1814, 211,928.

* City since 1712.

## NOTE 2.

### List of the Productions of the Agriculture and Cattle, in the Capitania of S. Paulo, in the Year 1814.

| Article. | Quantity. | Current Price. | Value of the whole Article. |
|---|---|---|---|
| Sugar - - | 122,993 arrobas. | Middling<br>Moscovade } 1600 rees.<br>1280 ditto.<br>per arroba. | 98,394,400 rees.<br>78,775,520 ditto. |
| Brandy - - | 2521 pipes. | 40,000 rees, per pipe. | 100,840,000 ditto. |
| Castor oil - - | 179 canadas. | 5200 ditto, per canada. | 930,800 ditto. |
| Wheat flour - | 5050 arrobas. | 960 ditto, per arroba. | 4,848,000 ditto. |
| Mandiocca flour - | 111,460 alqueires. | 560 ditto, per alqueire. | 62,417,600 ditto. |
| Maize - - | 723,989 ditto. | 240 ditto, per ditto. | 173,757,360 ditto. |
| Beans - - | 59,166 ditto. | 480 ditto, per ditto. | 28,399,680 ditto. |
| Rice - - - | 120,860 ditto. | 960 ditto, per ditto. | 116,025,600 ditto. |
| Bacon - - | 24,376 arrebas. | 1280 ditto, per arroba. | 31,201,280 ditto. |
| Fish - - - | 100 ditto. | 5000 ditto, per ditto. | 500,000 ditto. |
| Tobacco - - | 9596 ditto. | 2000 ditto, per ditto, from the sea coast (Marinha)<br>960 ditto per ditto, from the mountains (Serra Acima). | 9,596,000 ditto.<br>4,606,080 ditto. |
| Indigo - - | 128 pounds. | 760 ditto, per pound. | 97,280 ditto. |
| Cotton - - | 54,222 arrobas. | 1600 ditto, per arroba. | 86,755,200 ditto. |
| Coffee - - | 4,867 ditto. | 2200 ditto, per ditto. | 10,707,400 ditto, |
| Pigs - - - | 16,545 head. | 2000 ditto, per head. | 33,090,000 ditto. |
| Oxen, young - | 17,933 ditto. | 2000 ditto, per ditto. | 35,866,000 ditto. |
| Horses, not broke | 5,330 ditto. | 4000 ditto, per ditto. | 21,320,000 ditto. |
| Mules, not broke | 7,504 ditto. | 7000 ditto, per ditto. | 52,528,000 ditto. |
| Rams and Sheep | 1249 ditto. | 1280 ditto, per ditto. | 1,598,720 ditto. |
| Leather - - | 1300 pieces. | 720 ditto, per piece. | 936,000 ditto. |
| Sundries - - - - - - - - - | | | 3,074,800 ditto. |
| | | Total - | 1,003,764,440 ditto. |

## NOTE 3.—Exportation from the Capitania of S. Paulo, 1807.

| Articles. | Measure. | Exportation by Sea. | | Exportation by Land. | | Total Exportation. | |
|---|---|---|---|---|---|---|---|
| | | Total. | Val. in Rees. | Total. | Val. in Rees. | Total. | Wth in Rees. |
| Sugar | arrobas | 162,110 | 228,575,100 | 21,550 | 19,520,000 | 183,660 | 248,095,100 |
| Rum | pipes | 233 | 7,922,000 | 57 | 1,710,000 | 290 | 9,632,000 |
| Coffee | arrobas | 2,184 | 7,644,000 | 620 | 1,860,000 | 2,804 | 9,504,000 |
| Rice | alqueires | 45,927 | 75,517,770 | — | — | 45,927 | 75,517,770 |
| Mandiocca flour | do. | 7,825 | 4,538,500 | — | — | 7,825 | 4,538,500 |
| Wheat flour | do. | 2,008 | 2,610,400 | — | — | 2,008 | 2,610,400 |
| Wheat | do. | 188 | 214,320 | — | — | 188 | 214,320 |
| Maize | do. | — | — | 2,000 | 800,000 | 2,000 | 800,000 |
| Matte leaves | do. | 1,056 | 369,600 | — | — | 1,056 | 369,600 |
| Bacon | arrobas | 4,395 | 4,614,750 | 24,500 | 24,500,000 | 28,895 | 29,114,750 |
| Lard | do. | 1,820 | 2,912,000 | — | — | 1,820 | 2,912,000 |
| Calves | — | — | — | 6,200 | 24,800,000 | 6,200 | 24,800,000 |
| Pigs | — | — | — | 2,100 | 6,720,000 | 2,100 | 6,720,000 |
| Fowls | — | — | — | 12,300 | 1,476,000 | 13,300 | 1,476,000 |
| Ox hides | — | 6,600 | 9,900,000 | — | — | 6,600 | 9,900,000 |
| Half tanned do. | — | 593 | 519,700 | — | — | 593 | 519,700 |
| Fine leather | pieces | 200 | 150,000 | — | — | 200 | 150,500 |
| Indigo | arrobas | 126 | 2,318,400 | — | — | 126 | 2,318,400 |
| Starch flour | do. | 232 | 185,000 | — | — | 232 | 185,000 |
| Saltpetre | do. | 32 | 640,000 | — | — | 32 | 640,000 |
| Tobacco | do. | 666 | 1,065,600 | 10,710 | 10,712,000 | 11,376 | 11,777,600 |
| Ropes and cords | pieces | 10,680 | 4,165,200 | — | — | 10,680 | 4,165,200 |
| Timber | do. | — | 9,010,980 | — | — | — | 9,010,980 |
| Cotton stuffs | do. | 256 | 3,584,000 | 704 | 10,164,000 | 960 | 13,748,000 |
| Cotton yarn | arrobas | 240 | 1,702,000 | — | — | 240 | 1,702,000 |
| Train oil | pipes | 76 | 5,836,800 | — | — | 76 | 5,836,800 |
| Whalebone | pieces | 2,850 | — | — | — | 2,850 | — |
| Mules | head | — | — | 390 | 3,315,000 | 390 | 3,315,000 |
| Horses | do. | — | — | 1,010 | 7,070,000 | 1,010 | 7,070,000 |
| Sundries | — | — | 7,691,300 | — | 1,775,000 | — | 9,466,300 |
| Total | — | — | 381,687,420 | — | 114,422,000 | — | 496,109,420 |

| | | | |
|---|---|---|---|
| To Lisbon was exported in | 5 ships | a value of | 63,298,000 rees. |
| — Oporto, ditto | 5 do. | do. | 75,313,410 do. |
| — Madeira, ditto | 1 do. | do. | 13,513,600 do. |
| — Rio de Janeiro, ditto | 45 vessels | do. | 87,066,600 do. |
| — Bahia, ditto | 4 do. | do. | 12,067,450 do. |
| — Pernambuco, ditto | 6 do. | do. | 9,360,890 do. |
| — Rio Grande, ditto | 19 do. | do. | 117,197,170 do. |
| — Rio de S. Francisco, do. | 5 do. | do. | 2,577,420 do. |
| — Paraty, ditto | 2 do. | do. | 519,900 do. |
| — Ilha Grande, ditto | 2 do. | do. | 283,400 do. |
| — S. Catharina, ditto | 1 do. | do. | 388,710 do. |
| By land was sent to Rio de Janeiro | | do. | 103,776,000 do. |
| the Province of Minas Geraës | | do. | 2,685,000 do. |
| Rio Grande | | do. | 5,086,000 do. |
| Goyaz | | do. | 2,875,000 do. |

### Note 4. — Exportation from the Province of

| Articles. | 1801. In 2 Ships to Lisbon. | | 1802. In 2 Ships to Lisbon. | | 1803. In 3 Ships to Lisbon. | |
|---|---|---|---|---|---|---|
| | Total. | Value in Rees. | Total. | Value in Rees. | Total. | Value in Rees. |
| Sugar (arrobas)............. | 13,359 | 19,141,200 | 39,760 | 60,015,500 | 39,470 | 60,171,400 |
| Rum (pipes)................ | — | — | 12 | 480,000 | 36 | 1,440,000 |
| Coffee (arrobas)............ | 132 | 396,000 | 116 | 230,400 | 675 | 1,625,000 |
| Rice (alqueires)............ | 60 | 79,500 | 396 | 537,600 | 818 | 2,018,000 |
| Mandiocca flour (alqueires) | — | — | 120 | 84,000 | 270 | 189,000 |
| Wheat flour (alqueires).... | — | — | — | — | — | — |
| Salt meat (casks)........... | — | — | — | — | — | — |
| Lard (arrobas).............. | — | — | — | — | — | — |
| Hides....................... | 297 | 298,400 | 480 | 480,000 | 5620 | 8,938,240 |
| Tanned hides................ | — | — | — | — | 50 | 75,000 |
| Half tanned ox hides....... | — | — | — | — | — | — |
| Fine leather (pieces)........ | — | — | — | — | — | — |
| Indigo (arrobas)........... | — | — | — | — | — | — |
| Peruvian bark (arrobas)... | — | — | — | — | — | — |
| Starch flour (arrobas)...... | — | — | — | — | — | — |
| Saltpetre (arrobas)......... | — | — | — | — | — | — |
| Wood........................ | — | 280,000 | — | 128,000 | — | 100,000 |
| Cotton (arrobas)............ | 160 | 640,000 | — | — | 13 | 78,000 |
| Tallow...................... | — | — | — | — | — | — |
| Horn tips................... | — | — | — | — | — | — |
| Sundries.................... | — | 400,000 | — | 600,000 | — | 1,648,000 |
| Total...... | — | 21,235,100 | — | 66,555,000 | — | 76,282,640 |

S. Paulo to Europe, in the years 1801—1807.

| 1804. In 4 Ships to Lisbon and Oporto. | | 1805. In 4 ships to Lisbon, 2 to Oporto, 1 to Figueire, and 1 to Madeira. | | 1806. In 3 Ships to Lisbon, and 4 to Oporto. | | 1807. In 5 Ships to Lisbon, 4 to Oporto, and 1 to Madeira. | |
|---|---|---|---|---|---|---|---|
| Total. | Value in Rees. | Total. | Value in Rees. | Total. | Value in Rees. | Total. | Value in Rees. |
| 65,533 | 141,944,480 | 93,924 | 196,254,200 | 59,600 | 103,227,200 | 58,210 | 86,732,900 |
| 46 | 2,300,000 | 53 | 2,363,800 | 16 | 576,000 | 40 | 1,400,000 |
| 1,243 | 3,725,270 | 954 | 3,749,220 | 1,060 | 4,240,000 | 1,270 | 4,895,850 |
| 9,543 | 19,000,110 | 14,694 | 33,208,440 | 23,420 | 39,298,760 | 25,010 | 45,618,240 |
| 450 | 270,000 | 4,330 | 2,781,700 | 650 | 416,000 | 1,720 | 1,062,400 |
| — | — | — | — | — | — | 594 | 816,000 |
| — | — | — | — | — | — | 555 | 3,552,000 |
| 176 | 281,600 | 247 | 350,000 | 1,510 | 2,416,200 | 1,580 | 2,528,000 |
| 8,686 | 17,372,000 | 15,277 | 26,543,790 | 17,962 | 33,948,180 | 30,673 | 52,389,480 |
| 600 | 960,000 | — | — | 1,000 | 1,000,000 | — | — |
| — | — | 100 | 112,000 | 320 | 320,000 | 333 | 333,000 |
| — | — | 1,133 | 913,000 | 269 | 269,000 | 200 | 150,000 |
| 46 | 1,029,000 | 9 | 216,000 | 155 | 3,915,300 | 126 | 2,319,030 |
| — | — | — | — | — | — | 706 | 15,786,160 |
| 620 | 508,680 | 1,134 | 1,213,380 | 220 | 221,400 | 232 | 185,600 |
| 84 | 1,680,000 | 58 | 1,160,000 | 24 | 480,000 | 32 | 640,000 |
| — | 351,000 | — | 557,750 | — | 300,000 | — | 1,408,000 |
| 10 | 60,000 | 44 | 140,800 | 20 | 102,400 | — | — |
| — | — | 210 | 268,800 | 705 | 1,480,500 | 1,540 | 3,141,600 |
| 2,300 | 69,000 | 3,910 | 181,500 | 1,730 | 309,200 | 24,500 | 931,090 |
| — | 418,000 | — | 3,916,160 | — | 2,940,000 | — | 5,124,800 |
| — | 194,041,140 | — | 273,930,540 | — | 195,460,140 | — | 229,020,060 |

NOTE 4. — Exportation from the Province of S. Paulo to Europe, in the years 1801—1807.

| Articles. | 1801. In 2 Ships to Lisbon. | | 1802. In 2 Ships to Lisbon. | | 1803. In 3 Ships to Lisbon. | | 1804. In 4 Ships to Lisbon and Oporto. | | 1805. In 4 ships to Lisbon, 2 to Oporto, 1 to Figueire, and 1 to Madeira. | | 1806. In 3 Ships to Lisbon, and 4 to Oporto. | | 1807. In 5 Ships to Lisbon, 4 to Oporto, and 1 to Madeira. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total. | Value in Rees. | Total. | Value in Rees. | Total. | Value in Rees. | Total. | Value in Rees. | Total. | Value in Rees. | Total. | Value in Rees. | Total. | Value in Rees. |
| Sugar (arrobas)............. | 13,359 | 19,141,200 | 39,760 | 60,015,500 | 39,470 | 60,171,400 | 65,533 | 141,944,480 | 93,924 | 196,254,200 | 59,600 | 103,227,200 | 58,210 | 86,732,900 |
| Rum (pipes)................. | — | — | 12 | 480,000 | 36 | 1,440,000 | 46 | 2,300,000 | 53 | 2,363,800 | 16 | 576,000 | 40 | 1,400,000 |
| Coffee (arrobas) ............ | 132 | 396,000 | 116 | 230,400 | 675 | 1,625,000 | 1,243 | 3,725,270 | 954 | 3,749,220 | 1,060 | 4,240,000 | 1,270 | 4,895,850 |
| Rice (alqueires)............ | 60 | 79,500 | 396 | 537,600 | 818 | 2,018,000 | 9,543 | 19,000,110 | 14,694 | 33,208,440 | 23,420 | 39,298,760 | 25,010 | 45,618,240 |
| Mandiocca flour (alqueires) | — | — | 120 | 84,000 | 270 | 189,000 | 450 | 270,000 | 4,330 | 2,781,700 | 650 | 416,000 | 1,720 | 1,062,400 |
| Wheat flour (alqueires).... | — | — | — | — | — | — | — | — | — | — | — | — | 594 | 816,000 |
| Salt meat (casks) ........... | — | — | — | — | — | — | — | — | — | — | — | — | 555 | 3,552,000 |
| Lard (arrobas).............. | — | — | — | — | — | — | 176 | 281,600 | 247 | 350,000 | 1,510 | 2,416,200 | 1,580 | 2,528,000 |
| Hides ......................... | 297 | 298,400 | 480 | 480,000 | 5620 | 8,938,240 | 8,686 | 17,372,000 | 15,277 | 26,543,790 | 17,962 | 33,948,180 | 30,673 | 52,389,480 |
| Tanned hides................. | — | — | — | — | 50 | 75,000 | 600 | 960,000 | — | — | 1,000 | 1,000,000 | — | — |
| Half tanned ox hides....... | — | — | — | — | — | — | — | — | 100 | 112,000 | 320 | 320,000 | 333 | 333,000 |
| Fine leather (pieces)........ | — | — | — | — | — | — | — | — | 1,133 | 913,000 | 269 | 269,000 | 200 | 150,000 |
| Indigo (arrobas)............ | — | — | — | — | — | — | 46 | 1,029,000 | 9 | 216,000 | 155 | 3,915,300 | 126 | 2,319,030 |
| Peruvian bark (arrobas)... | — | — | — | — | — | — | — | — | — | — | — | — | 706 | 15,786,160 |
| Starch flour (arrobas) ...... | — | — | — | — | — | — | 620 | 508,680 | 1,134 | 1,213,380 | 220 | 221,400 | 232 | 185,600 |
| Saltpetre (arrobas) ......... | — | — | — | — | — | — | 84 | 1,680,000 | 58 | 1,160,000 | 24 | 480,000 | 32 | 640,000 |
| Wood......................... | — | 280,000 | — | 128,000 | — | 100,000 | — | 351,000 | — | 557,750 | — | 300,000 | — | 1,408,000 |
| Cotton (arrobas)............ | 160 | 640,000 | — | — | 13 | 78,000 | 10 | 60,000 | 44 | 140,800 | 20 | 102,400 | — | — |
| Tallow ........................ | — | — | — | — | — | — | — | — | 210 | 268,800 | 705 | 1,480,500 | 1,540 | 3,141,600 |
| Horn tips..................... | — | — | — | — | — | — | 2,300 | 69,000 | 3,910 | 181,500 | 1,730 | 309,200 | 24,500 | 931,090 |
| Sundries....................... | — | 400,000 | — | 600,000 | — | 1,648,000 | — | 418,000 | — | 3,916,160 | — | 2,940,000 | — | 5,124,800 |
| Total...... | — | 21,235,100 | — | 66,555,000 | — | 76,282,640 | — | 194,041,140 | — | 273,930,540 | — | 195,460,140 | — | 229,020,060 |

## NOTE 5.

### Trade of the Capitania of S. Paulo in 1813.

| Exports. | | Imports. | |
|---|---|---|---|
| Article. | Quantity. | Article. | Quantity. |
| Sugar | 578,657 arrobas. | Wine | 3,445 pipes. |
| Brandy | 1,214 pipes. | Portuguese brandy | 52½ ditto. |
| Train oil | 180 ditto. | Vinegar | 27 ditto. |
| Wheat flour | 6,044 arrobas. | Olive oil | 5 ditto. |
| Maize | 23,758 alq. | Beer | 1,957 bottles. |
| Beans | 6,739 ditto. | Wares | 1,113 bales. |
| Rice | 38,518 ditto. | Hats | 200 chests. |
| Bacon | 19,990 arrobas. | Powder | 44 arrobas. |
| Preserves | 142 ditto. | Lead | 353 cwt. |
| Cheese | 344 dozen. | Iron | 1,080 ditto. |
| Paraguay tea | 963 alq. | Steel | 130 arrobas. |
| Tobacco | 7,018 arrobas. | Copper | 549 ditto. |
| Coffee | 9,223 ditto. | Iron goods | 158 chests. |
| Indigo | 3 ditto. | Pottery and glass | 379 ditto. |
| Hides | 1,074. | Slaves | 656. |
| Lime | 18 moios. | Salt | 37,669 alq. |
| Starch flour | 24 alq. | Stockfish | 149 cwt. |
| Raw cotton | 1,224 arrobas. | Olives | 54 barrels. |
| Cotton stuffs | 66 pieces. | Hams | 3 arrobas. |
| Striped cotton stuffs | 4,634 ditto. | Fish | 185 ditto. |
| Cables of imbé* | 40. | Salt meat | 4,447 ditto. |
| Pigs | 11,263 head. | Butter | 412 ditto. |
| Oxen | 1,402 ditto. | Tea | 74 ditto. |
| Timber for | 4,604,060 value in rees. | Tallow | 52 ditto. |
| Sundries for | 1,006,300 ditto. | Wax | 858 ditto. |
| | | Drugs and spices for | 7,612,980 rees. |
| | | Sundries for - - | 23,946,120 do. |
| Of which exported to | | Of which imported from | |
| Lisbon for - - | 2,635,200 rees. | Oporto for - - | 53,270,900 rees. |
| Oporto for - - | 49,907,600 do. | Rio de Janeiro for - | 646,584,928 do. |
| Rio de Janeiro for - | 536,006,600 do. | Bahia for - - | 24,362,560 do. |
| Bahia for - - | 13,042,880 do. | Pernambuco for - | 15,500,800 do. |
| Pernambuco for - | 5,085,000 do. | Rio Grande for - | 6,604,800 do. |
| Rio Grande for - | 34,420,880 do. | Cabo Verde for - | 9,033,600 do. |
| Rio da Prata for - | 25,844,680 do. | Cotinquiba for - | 6,876,760 do. |
| | | Rio da Prata for - | 3,870,680 do. |
| Total exportation | 666,942,840 rees. | Total importation | 766,105,028 rees. |

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* The *imbé* of the southern provinces is manufactured out of the stems of several kinds of paullinias, and, on account of its toughness, is peculiarly adapted for ships.

## NOTE 6.

### Produce, Exports, and Consumption of the Island of S. Catharine in 1812.

| Produce. | Measure. | Number. | Consumption. | Exportation. | Value of Exports in Rees. |
|---|---|---|---|---|---|
| Brandy | pipes | 63,241 | 11,915 | 51,326 | 3,292,000 |
| Cotton | cwt. | 2,250 | 1,513 | 737 | 4,716,800 |
| Leeks | bushels | 16,506 | 4,884 | 11,622 | 1,859,520 |
| Rice | cwt. | 18,723 | 5,532 | 13,191 | 24,326,720 |
| Sugar | do. | 712 | 332 | 380 | 2,188,800 |
| Ropes of imbé large | rolls(doz.) | 141 | 14 | 127 | 254,000 |
| Ropes of imbé small | do. | 235 | 11 | 224 | 224,000 |
| Coffee | cwt. | 12,592 | 8,836 | 3,756 | 33,052,800 |
| Hemp | do. | 5 | — | 5 | 39,000 |
| Hides | — | 35,900 | 13,000 | 22,900 | 29,312,000 |
| Broad beans | alqueires | 327 | 160 | 167 | 80,160 |
| Mandiocca flour | do. | 388,361 | 160,230 | 228,131 | 127,753,360 |
| Beans | do. | 9,832 | 6,640 | 3,192 | 1,276,800 |
| Starch flour | cwt. | 18 | — | 18 | 64,800 |
| Gravata thread* | arrobas | 118 | 97 | 21 | 84,000 |
| Flax | cwt. | 1,798 | 277 | 1,521 | — |
| Boards | dozens | 2,553 | 241 | 2,312 | 5,086,400 |
| Mundubi beans | alqueires | 872 | 321 | 551 | 330,600 |
| Maize | do. | 16,968 | 7,847 | 9,121 | 2,189,040 |
| Salt fish | arrobas | 377 | 151 | 226 | 1,130,000 |
| Salt fish | bundles | 9,985 | 6,465 | 3,520 | 7,040,000 |
| Onions | bushels | 10,472 | 4,525 | 5,947 | 1,189,400 |
| Barley | alqueires | 20 | 15 | 5 | 5000 |
| Molasses | pipes | 7,118 | 2,992 | 4,126 | 1,435,000 |
| Tobacco | cwt. | 165 | 14 | 151 | 724,800 |
| Wheat | alqueires | 3,365 | 2,618 | 747 | 821,700 |
| Total |  |  |  |  | 248,476,700 |

In the same year there arrived at S. Catharine's:

|  |  |  |
|---|---|---|
| Large ships | 5 | sailed 5. |
| Brigs | 32 | ... 39. |
| Smacks | 63 | ... 58. |
| Boats | 38 | ... 39. |
| Yachts | 12 | ... 11. |
| Total | 150 | 152 ships. |

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* The threads out of the leaves of several species of pine-apples (Bromelia) are prepared in the same manner as from the leaves of the American aloe in Sicily.

## NOTE 7.

### Population of the Island of S. Catharine in the year 1813.*

| Males. | | | | | Females. | | | | | Grand total. |
|---|---|---|---|---|---|---|---|---|---|---|
| Free. | | | Slaves. | Total. | Free. | | | Slaves. | Total. | |
| Whites. | Negroes. and Mulattoes. | Together. | | | Whites. | Blacks and Mulattoes. | Together. | | | |
| 11,495 | 312 | 11,807 | 4905 | 16,712 | 13,311 | 353 | 13,664 | 2573 | 16,337 | 33,049 |

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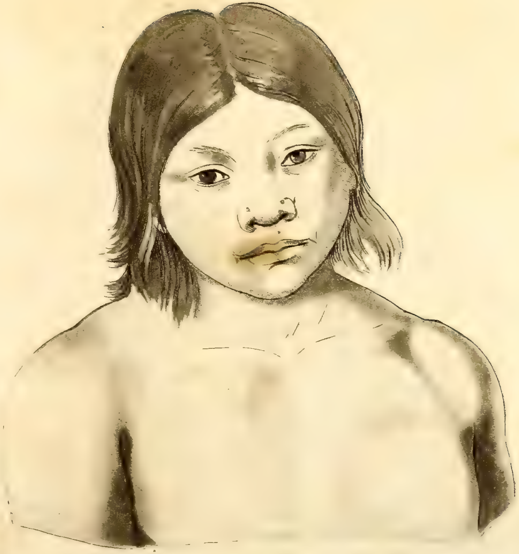
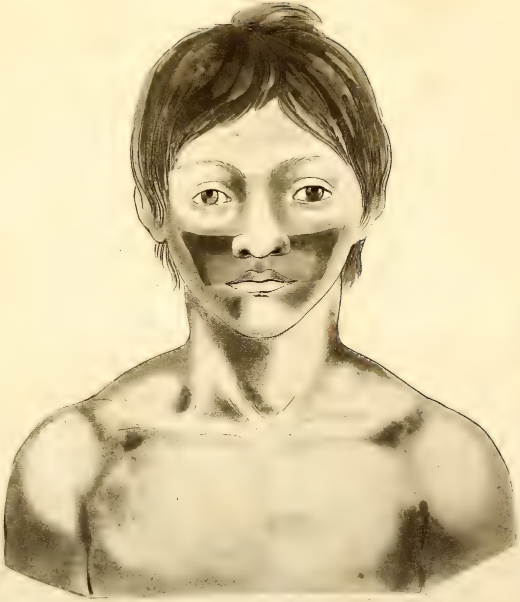
* According to the list in the journal O Patriota of June, 1814, p. 99.



MIRANHA.



IURI.

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# CHAPTER II.

## JOURNEY FROM THE CITY OF S. PAULO TO THE IRON-FOUNDRY OF YPANEMA.

During the time of our stay at S. Paulo, the rainy season had set in with great regularity. It rained almost without interruption throughout the night, and in the day-time the sky was obscured after mid day with thick clouds, which suddenly descended in torrents of rain, after which the heavens again resumed for a short time their beautiful transparent azure; the air at this time was seldom very sultry; nay, we found in the night such a rapid change in the temperature, that we were obliged to provide ourselves with warmer covering. The present season was extremely unfavourable to our wish of becoming acquainted with the natural curiosities of the country, for whenever we ventured to extend our excursions beyond the immediate neighbourhood of the city, we always returned home wet through. The vegetable world began, it is true, to shoot forth with renovated vigour, but the animals showed themselves in smaller numbers. We resolved, therefore, to shorten our stay in the city, which was at all events tiresome for naturalists, and to repair to the iron foundry of S. Joâo Ypanema, about twenty leagues distant; the beautiful environs of which, together with the abundance of plants and animals to be found there, had been described to us in very attractive colours by Lieutenant-colonel Varnhagen, the director of the establishment, whom we had met with at Rio de Janeiro. The government provided us with letters of recommendation to the resident authorities, and our active countryman Mr. Müller procured us, as tropeiro, a Paulista, who bore a good character as a guide for caravans. Our mules, having been brought back to S. Paulo, from the pasture to which they had been driven during our stay, we departed on the 9th of January, 1818, from this city, which the cordial frankness and hospitality of its inhabitants had given us so much reason to remember with sentiments of gratitude.

The road to Ypanema leads S.S.W., over a hilly and partly cultivated country. To the right lay the mountain of Jaraguá, belonging to General Da Franca e Horta in Rio, who had invited us to spend some days there, to examine the formation, and the former gold-washing, which he has again begun to work. This mountain forms one of the most southern branches of the Serra do Mantiqueira, which, after running for more than fifty miles to the north, disappears in this latitude. The earth washed for gold in this place is a ferruginous sandstone conglomerate, in which the metal appears sometimes in grains, and sometimes in little scales. From Jacarehy, a small place, the road gradually ascends. The country consists of hills pleasingly grouped, and alternating with narrow valleys. The eminences are covered with a greyish green high grass, between which there are scattered bushes of myrtles, melastomas, rhexias, &c.; the more fertile valleys, on the contrary, are covered with low wood. At Cutia, a parish five leagues from S. Paulo, we left our company, in order to reach Ypanema as soon as possible. We were very near having reason to repent of this step, because, as we learnt afterwards, some of our people were said to have expressed an intention to open our trunks, and decamp with the plunder. We took this as a warning never more to separate from our caravan during our tour. The country through which we rode continued to become more mountainous and woody; the road was indeed broad, and tolerably well beaten by the numerous herds of mules, often amounting to nearly a thousand head, which pass through here from the province of Rio Grande do Sul, yet all at once we got out of it, and lost ourselves in the thicket. The silence of this forest, which was only now and then interrupted by the loud note of the uraponga, makes a very melancholy impression on the traveller who has gone astray, as he fears at every step to wander farther from his destination. After riding about in the woods for several hours, we at length met in a side-path with a very friendly person, who with great readiness conducted us back to the main road, which was at a considerable distance. He was the priest of S. Roque (the place which we intended to reach to-day), and was going to visit his estate in the evening. In other countries the peaceful preacher of the Gospel would hardly be recognised in the costume of a Paulista, consisting of a wide cloak (*poncho*), a broad-brimmed white beaver hat, and a sabre at his side. In this country it is however necessary to travel in this manner, because in the solitary paths through the forest, you may sometimes meet an ounce, or a venomous serpent, or a thievish runaway slave.

At S. Roque, an inconsiderable village, the Cabo das Ordenanças, as the principal person of the place, immediately took care to accommodate us in a small ruined hut, treated us with a frugal meal, and, at last, procured us a frame (*girâo*) of laths bound together to sleep upon. The prevailing rock in this neighbourhood is a yellowish coarse-grained sandstone, which alternates here and there with layers of brown iron-stone. On the road, casual fragments of red iron-stone frequently occur. In general, the extensive appearance of iron, though only in fragments, is more remarkable the farther you proceed from the granite to the sandstone formation; on declivities octahedral crystals of magnetic iron-stone are sometimes found quite detached. On the following day we had again to pass through low but thick woods, in which we caught the little atlas (*A. Aurora*), and a new beetle of the species *Lamprima*, with very much bent mandibles anteriorly bifurcated. Towards evening we issued from the wood; and, after passing high campos covered with luxuriant grass, reached the Villa de Sorocaba. This pretty place lies on the inconsiderable river of the same name, which flows into the Tieté to the west of it, and over which there is a wooden bridge. Some German workmen had long been expected here for the neighbouring iron-foundry of Ypanema, and the people immediately overwhelmed us on our arrival, with questions respecting their coming, their ability, and the method of working the metal in Germany. So evident a mark of interest in a royal establishment inspired us with a favourable opinion of the civil character of the people of Sorocaba. In fact, we learnt afterwards that they everywhere enjoyed the reputation of trust-worthiness, and honesty, wherever they appear with herds of unbroken mules, the sale of which is their most important branch of traffic. The capitâo môr immediately regaled us with ripe grapes; while eating which the question occurred to us—why this fruit produces, in this country, so little saccharine matter, while the ananas, in the province of S. Paulo, are so remarkably sweet and well-tasted? Perhaps this circumstance arises from the soil containing too little lime, being rather clay or granite; and from the vine not being yet sufficiently naturalised. The reason is, that laws formerly existed prohibiting the cultivation of the vine in this country, in order to prevent injury to the Portuguese trade. It is now freely permitted, but there are few persons who avail themselves of the liberty. We rested in Sorocaba only till the cool of the evening, in order to set out for the iron-foundry of S. Joâo de Ypanema, which is about two leagues distant. The road to this little place, which we reached at sunset, passes over campos with low hills covered with short grass, and scattered dwarf trees, and in the bottoms there is here and there low wood. It is situated on an amphitheatrical eminence on the banks of the river Ypanema, which here spreads out into a lake; beautiful plains form the foreground, and the iron-mountain of Araasojava (*Guarasojava*) covered with a dark wood which, on the north-west side, descends into the valley, makes the background of the landscape. The neatly white-washed houses, which lie scattered along the hill, at the foot of which stand the extensive buildings of the manufactory, and the expression of noisy activity and industry, which reign here, seem to transport the European into some manufactory in a beautiful wild district of his own country.

We had been recommended by the amiable Colonel Toledo, at S. Paulo, to Signor Francisco Xavier Ferreira, the accountant of the establishment.

The hospitality of this worthy Paulista, and the natural good-nature with which his numerous family welcomed us strangers, rendered our stay at Ypanema one of the most agreeable parts of our journey, upon which we never reflect without pleasure. Our host gave up to us a small house near the manufactory, where we had room enough to arrange, air, and dry our collections. He himself resided in a farm upon an eminence, about ten minutes walk from the place, but had several horses kept ready saddled the whole day, near to us, to facilitate our excursions. Our residence with this friendly unaffected family would have been very agreeable to us from the first, had we not been uneasy about the delay of our caravan, which was to have joined us on the evening of our arrival. Three days passed in anxious expectation, and it was not till we had sent a tropeiro with fresh animals, that our mules arrived on the fifth day in the most deplorable condition. A free negro, who came from Rio de Janeiro with our troop, as tropeiro, and who was born in this part of the country, treacherously ran away as soon as he found himself in his native place. This event inspired us with invincible distrust of all people of his colour, which opinion was of considerable service to us on many similar occasions. We must, therefore, recommend to travellers in the interior of Brazil to take the greatest care in the choice of their servants; the less they depend, in this respect, upon natives, the more agreeably and securely will they travel.

The whole village of Ypanema owes its origin to the vast repositories of magnetic iron-stone in the mountain of Araasojava, the treasures of which have indeed been long known, but were not regularly worked according to the true principles of mining till after the arrival of the king. The enterprising minister, Conde de Linhares, brought hither, in the year 1810, a company of Swedish miners, who began by erecting a wooden workshop on the banks of the Ypanema, in which they had two small furnaces. At present there are still three Swedish master-workmen, who have increased the annual produce of the manufactory built by them to four thousand arrobas. In the smelting and other operations the Swedish method is followed. The want of a high furnace, as well as the difficulty of transporting the metal in large masses, and the demand for ready-made articles, induced the managers to have the greater part of the metal that is obtained immediately manufactured into horseshoes, nails, locks, &c. The Swedish workmen have endeavoured to instruct negroes and mulattoes so as to qualify them to be useful assistants, and are very well satisfied with their practical ability; but their idleness and irregularity are a continual cause of dissatisfaction to those good people who, even in the abundance and freedom from care which they enjoy in this southern climate, cannot forget their own country, and are filled with the most painful longing after their native land, at the thought that, like their already deceased companions, they will one day lie in unconsecrated ground. Under the government of the Conde da Palma, an enlightened promoter of the manufactories, a plan was made for a new and more durable iron-foundry, and the execution of it was confided to our countryman, Lieutenant-colonel Varnhagen. This handsome and extensive edifice, the expenses of which amounted to 300,000 crusados, was just completed when we arrived at Ypanema, but they had not yet begun the operation of smelting in it, because they waited for the founders necessary for the management of a high furnace, who were expected from Germany. The buildings of the new manufactory are constructed, with taste and solidity, of yellow sandstone, which is found in the neighbourhood. There are two high, and several other furnaces; the bellows are worked by water. Very well contrived and spacious magazines for keeping the coals and the ready-manufactured articles are erected near to the main building, which receives the necessary water from the Rio Ypanema by means of a bricked canal provided with sluices. There is also an hospital for the sick workmen belonging to the establishment, which is attended by two surgeons. At the time of our visit doubts were still entertained whether the sandstone here was proof against fire, because they had not yet attempted to smelt. A difficulty which will oppose the extending of the manufactory is the want of proper wood for fuel; for though the low valleys, the banks of the streams, and the iron mountain of Araasojava itself, are covered with wood, it is probable that this will soon be exhausted if the manufactory continues to work to a great extent. The directors have, it is true, made the regulation, that every inhabitant of these parts must furnish a quantity of charcoal in proportion to the extent of the land cultivated by him; but this means, without the due planting of new woods, and a judicious management of those which already exist, cannot prevent a future scarcity of fuel. By plantations of the paraüna (perhaps an acacia?), a kind of wood which produces a very good charcoal, they would prevent the necessity of employing many different kinds of charcoal; which, by an unequal communication of carbon to the iron in the process of smelting, probably make it of unequal density, and consequently brittle in some places. The ore appears to be good, and contains partly ninety per cent.; yet we frequently heard complaints in Brazil that the iron extracted from it was too brittle, and that many instruments made of it were not durable. When the best method of treating the ore, especially in the operation of refining, is discovered, and the exportation facilitated by making a good road or canal to the coast, Ypanema, with its incredible abundance in iron ore, will be able to supply, not only Brazil, but all the rest of the American continent, with that metal.

The mountain which produces this extraordinary quantity of ore, rises behind the place, a quarter of a mile to the west, and extends, as a rather insulated mountain ridge, a league in length, from south to north. The elevation above the Ypanema is about 1000 feet. It is almost every where covered with thick woods, from which, in the morning and evening, the noisy howls of the brown monkey (*Mycetes fuscus**) are heard. We ascended it, taking the narrow road through the bushes, by which the mules bring the ore to the manufactory. After we had gone winding up the mountain for a short way through thick wood, we found ourselves all at once before some gigantic rocks of magnetic iron-stone, which rise almost perpendicularly to the height of forty feet and more. Around them, partly upon, and partly under, the surface of the ground, which is a very rich mould, lie innumerable loose pieces, from the size of a fist to considerable blocks. The surface of the masses of rock is almost everywhere flat and even, with slight depressions and cavities, and has a crust of imperfectly oxydated iron-stone, which is some lines thick. We did not observe that the great masses caused any motion in a suspended needle, but small pieces, especially when just struck off, had a considerable effect on it. The mass of this magnetic iron-stone is either quite compact or traversed by veins of red ochre. This iron-stone appears to be in immediate contact with a yellow quartzy sandstone, with an argillaceous cement; at least, the latter is seen in several places at the foot of the mountain, as well as in Ypanema itself. A dirty lavender-blue primitive clay-slate, tinged brown in the rifts, which runs from east to west, lies on the top of the mountain, here and there, over the iron. Upon the Morro de Araasojava, and probably in veins of the magnetic iron-stone, there is a porous quartz-stone, of a light brown colour, the cavities in which are covered with a bluish white calcedony, with a crystallised surface.

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* Spix: Simiarum et Vespertilionum brasiliensium species novæ, &c. Monachii, 1823. fol. tab. xxx.

The forests, which stand more luxuriant and thicker in the hollow than in the higher parts, are uncommonly rich in the most various kinds of wood. In the company of a farmer of the neighbourhood, we collected, in one day, a hundred and twenty different kinds, among which, there was in proportion a great number of very hard and durable species, fit for the construction of buildings and ships.* We were very much struck with the facility with which our guide, after viewing the stem and the bark of each species, told us not only the name current in the country, but also stated the use, the time of flowering and the kind of fruit. An uninterrupted intercourse with nature, sharpens the senses of these uneducated people to such a correct notion of natural distinctions, that they mostly excel, in this respect, the learned European, who has fewer opportunities of contemplating nature. The sertanejo (a countryman) of S. Paulo distinguishes several kindred forms of laurel trees, which he intends to fell for domestic purposes, on a comparison of their leaves, with a certainty that would do honour to a botanist. He is equally distinguished by an accurate acquaintance with the medical plants of his country. The female inhabitants of this province in particular, have the reputation of great skill in the practice of the medical profession. Almost in all the houses, one or other of the women takes upon her the office of curadeira, which is not disputed with her by any real physicians or surgeons, for at the time that we travelled through the capitania of S. Paulo, there was no regular physician either in the city or in the country. It is an error, to suppose that this practical knowledge of the medical virtues of natural substances, has chiefly descended to the present inhabitants, by tradition, from the American aborigines. A long intercourse with the Indians has convinced us, that the indolence of these unhappy people, hinders them from investigating the healing virtues of plants. Superstition and indifference to life, and insensibility to the sufferings of their fellow-creatures, prevent the Indians from making use of the beneficent gifts of nature which everywhere surround them, and which their senses, quick in simple observation, would readily discover if they took any lively interest in them. The greatest merit in discovering and making use of healing plants, as well as the finding of the gold mines, is therefore due to the Paulistas. Their active minds and their curiosity, excited by the bounty of nature, pursued, with the acuteness peculiar to Europeans, the discoveries which occurred to them by chance, or very seldom by information obtained from the aboriginal inhabitants.

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* The most valuable woods of that country are, *Sebastião d'Arruda, Coracão do Negro,* both chiefly used for fine furniture on account of their red grain; *Jacarandà-tun,* an excellent kind of mahogany; *Masaranduva, Cabiuna, Perova, Paraüna, Jequetivà, Cedro,* &c.

In this branch of research, the human mind everywhere takes advantage of the indications of nature, and from the physical character of objects from the smell, colour, from the similarity of certain forms with parts of the human body, draws analogical conclusions respecting their internal virtues and their effects as medicines. Thus the Paulista, endowed with a lively sensibility to nature, saw in every deep red colour a reference to the blood, in the yellow to the gall and liver: to the Urupé (*Boletus sanguineus*), which is of the colour of red lead, suddenly appears on decayed trees, and frequently continues only a month, he ascribed peculiar properties for checking hemorrhage; in the yellow wood of the bùtua (*Abuta rufescens*) he saw a hint of its efficacy against diseases of the liver; in the testicle-shaped root of the *contrayerva* (*Dorstenia brasiliensis*) and the heart-shaped leaves of the *Coracâo de Jesus* (*Mikania officinalis*, nob.) an indication of strengthening and cordial qualities; and considered the large bright flowers of the *Gomphrena officinalis*, nob. as an expression of many excellent qualities of the root, which he therefore distinguished by the significant name of Paratudo (good for every thing). We might mention several other similar natural productions, which the Paulista, having judged to be efficacious from their external appearance, tried, in a very rude empirical manner it is true, and applied them more and more frequently against diseases. Among this little people of colonists, who were left only to their own simplicity and the natural riches which surround them, medicine began with mere practical experience and popular traditions, and assumed the same character which it bore in Europe in the middle ages; and as testimonies of which, we still find in several Pharmacopœias of old date, elks' claws, the scincus officinalis, &c. The scientific physician must here make use of the simple accounts and experience of the country people, to extend the knowledge of medicine, as Hippocrates formerly used the votive tables in the temples. Wounds in particular, and external disorders of the most various kinds, are here treated with a degree of success which is often astonishing. Both the rapidity with which in hot countries all organic processes go on, and the frequently almost too bold interference of the half-taught physician, by desperate remedies and by excessive doses, may likewise be among the causes of the success of many modes of treatment which in Europe would be condemned as hazardous. The circumstance too, that most of these domestic remedies are taken immediately from their living state for medical purposes, is of great importance, and, perhaps, too little attended to in Europe, where the state of civil society keeps us at a greater distance from nature. The European medicines from the vegetable kingdom have lost most of their virtues before they have reached this country, and the Brazilian physicians therefore substitute, without hesitation, the native productions for many that come from abroad. Only for a few remedies, for example, Iceland moss, the squilla, aconite, digitalis, opium, which latter, however, seems frequently not to act favourably, sufficient substitutes are not yet known here.*

We had been only a few days at Ypanema, when the report of the arrival of two foreign physicians had spread far and wide through these lonely regions, and patients came from all quarters, who asked our advice and medicines. Our host, too, a man full of patriotic sentiments, thought it his duty to turn the presence of his guests to the advantage of his friends and neighbours, and introduced to us a great number of patients. In the space of a fortnight, which we spent here, we distributed above five hundred prescriptions to the crowd of applicants, which half emptied our little medicine chest. By far the greater part of the diseases which we here observed, were of syphilitic origin, or united with syphilitic dyscrasy. The forms under which this polymorphous disease appears, are of the greatest diversity, particularly as regards the cutaneous system, and several of them have perhaps not yet been observed in Europe. In general the character of disease here is inflammatory, and modified by the choleric, melancholy temperament of the Paulista. Under this head must be classed the extremely numerous cases of inflammation of the eyes; of erysipelas, combined with liver complaints; of acute dropsies, particularly anasarca; of hydrothorax, the consequences of pneumonic complaints, which appear sometimes simple and sometimes complicated with gastric affections difficult to be recognised; of apoplexies preceded by cataract, &c. In no part of Brazil are there so many melancholy and hysterical patients as here. Hydrophobia has been already observed though rarely. In mentioning the circumstances tending to produce diseases in this part of Brazil, we must particularly notice the diet which differs essentially from that in the northern provinces. Instead of mandiocca, they use almost exclusively a coarsely ground maize flour: it is brought to table in little baskets, as bread is in Europe, and it is only when the guests require it that farinha de pâo (mandiocca) is brought in its stead. They very rarely bake it into bread or cakes. Besides this, *Canjica* which is also made of maize, and which is never wanting at the dessert, is likewise a national dish of the Paulista. The grains of maize, cleared of the husks by a hammer, driven by means of water, in the hollowed trunk of a tree, are boiled with water or milk, and then sweetened with sugar or treacle. This dish, of the invention of which the Paulistas are not a little proud, is well-tasted, but, on account of the heat of the climate, difficult of digestion. We often hear in this province the expression: "if we had not been the first who discovered the gold mines, we should have done sufficient service to the country by the canjica, and the hammocks, which last we first copied from the Indians."

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* See Note 1. page 90.

The simple inhabitants of this country, had not yet heard anything of animal magnetism, and listened with some incredulity to our accounts of this mode of cure, which in their opinion, was of a magical nature. If we had proposed the cure by magnetism, for hysterical women, their husbands would certainly not have been indifferent to the execution of this project; but another opportunity presented itself for making such an experiment. A young negro slave, who had lost the use of his right arm, by suddenly taking cold, was brought to us by his master, to examine the nature of his disease. After we had sufficiently enquired into all the circumstances, we decided that the application of magnetism to the right arm, would be the most suitable method. One of us, therefore, made him stretch out his arm upon a table, and had begun to magnetise only a few minutes, when the attention of the spectators was attracted by a considerable motion of all the muscles of the patient's arm. The operator hereby encouraged, redoubled his exertions; and when a short time afterwards, he called to the negro, in a voice of command, "Rise! lift up your arm!" the patient, still half in doubt, raised his arm, and as he was able to perform all the motions without difficulty, a scene took place which was worthy of the pencil of a master; the astonishment of the persons present, and their terror at this act of conjuration, the respectful triumph of our host, the joy of the slave, and the gratitude of his master, formed altogether a very animated picture. We did not remain long enough at Ypanema, to learn whether our black patient continued to feel the benefit of the operation; but at all events, we could not but be surprised at the rapidity with which a single manipulation had acted upon him.

This experiment appeared to us to confirm the notion, to which the physiologist is led by many other circumstances, that the European excels the black and other coloured races in intensity of nervous vitality, and is specifically superior to the other races both in body and mind (dass der Europäer an Intensität des Nervenlebens die gefärbten Menschen übertreffe, und auf eine ganz specifische Weise, sowohl somatisch als pyschisch die übrigen Racen beherrsche). It has been already observed by several ingenious writers, that the individual races, though similarly organised, are, however, more or less qualified in various respects, and that a superior conformation of the intellectual organs and powers indemnifies the European, for instance, for the absence of inferior and lower faculties. If, for example, the man of the Caucasian race is inferior to the negro in mobility and productiveness, to the American in firmness and robustness of make, in muscular strength, in ability to endure fatigue, and in longevity, and both to him and to the Mongol in acuteness of the senses, he however excels them all in personal beauty, in symmetry, proportion, and carriage, and in regard to the moral, free, independent, universal development of the intellectual faculties. It is that beautiful harmony of all the individual powers, which is only produced and maintained by the preponderance of what is noblest in man, which more accurately establishes his dignity, than the pre-eminent, and perhaps excessive perfection of single inferior organs. It is the result of this beautifully constituted and more perfect unity of the human powers, that must be considered as true humanity, which is inseparable from the idea of freedom. Freedom, founded on a lively moral consciousness, and developed by the glories of religion and genuine science, has impressed upon the European the stamp of elevation and dignity, which have hitherto almost unconsciously conducted him victorious through all parts of the globe; which have protected him among the rude children of nature, even where unlicensed presumption has succeeded to the first simplicity, and everywhere defend him with the shield of veneration and awe. We ourselves had opportunities, during a longer residence among the Indians, of proving the superiority which the nature of the whites exercises over them. This race, as well as the Ethiopic, and their mixed descendants, manifest a secret awe of a white man, so that a look from him, nay his bare appearance, terrifies them; and one white, in silence, commands hundreds of them. This is still more the case with the blacks, who, though prompt to act, have no real solid courage, and are therefore, as it were, mentally subdued and constrained by the innate superiority, and the firm resolution, of the white man.

After we had explored the immediate environs of Ypanema, we extended our excursions to more distant parts. It appeared to us to be of particular importance to visit the town of Villa do Porto Feliz, on the Rio Tieté, where various information was to be obtained, respecting the trade between S. Paulo and Matto-grosso, which is carried on from that place. The distance from Ypanema to Villa do Porto Feliz is five leagues and a half. The road leads generally in a north-west direction, over hilly campos, and through low woody tracts, where we did not meet with a single house. The capitâo môr, who had been made acquainted with our arrival by our obliging host and companion, received us with great hospitality, and readily showed us every thing remarkable in the place, which consists of a few huts, lying on the eminence. The Rio Tieté, formerly called Anhembí, flows on the west side, at the foot of the village. The water is of the same disagreeable dark brown colour as in the neighbourhood of S. Paulo. At this place, having been joined by several small rivers, among which are the Rio dos Pinheiros, the Jundiahy, and the Capibarí, it has already acquired a considerable mass of water, so as to be from twelve to fifteen fathoms broad, and it runs southward, between rocky banks, covered with thick forests. Close to the port, which is nothing more than a creek, cleared of wood and stones, and at present showing no sign of trade and business, except a few boats drawn on shore, a rocky wall rises to the height of forty or fifty feet, which, in the Lingua Geral, is called

*Arara-ita-guaba*, i. e. the place where the araras eat stones, and formerly had given the same name to the town. These rocks consist of the same stone, belonging to the sandstone formation, which is found about Ypanema. Its surface is covered with a fine yellowish grey marl, containing here and there imbedded fragments of sandstone; which marl is also found in other places, for example, on the hills of the town, exhibiting an efflorescent white salt, probably alum. It is said to have been observed, that after the end of the rainy season the araras and other birds flock hither from all the neighbouring country, to rub off with their bills, and lick up, the saline efflorescence of the stone. We could not be witnesses of this singular scene; on the contrary, the whole country, which was in itself so melancholy, from the dark waters of the river, appeared as if dead. The licking of the ground by animals in the hotter part of Brazil, where the surface of the earth, in extensive tracts, produces salt, and particularly saltpetre, is however, of very ordinary occurrence, to which we shall revert in the sequel. Not far from the town several large rolled pieces of greenstone are visible in loam; lime also is said to be found in the neighbourhood.

It was from Porto Feliz that the Paulistas set out upon their first expedition to explore the interior of the *Sertões*, lying to the west. Thirst of gold, and love of adventures excited them, so far back as the end of the seventeenth century, to follow the course of the Tieté. After they had happily passed its numerous falls they came into the Paraná, and from that into the Rio Pardo, up which they then sailed. The crystal water of the Rio Sangue-xuga, one of the principal sources of the Rio Pardo, seemed to promise them ample success in their search for gold. They explored the country; washed the earth, in hopes of finding that precious metal; and passing the limit of the waters of the Serra de Camapuâo, reached the sources of the Embotatay, which they descended till they at last entered the broad stream of the Paraguay. In the marshy and unhealthy tracts they at first, indeed, found no gold; but the report of the riches of the neighbourhood, particularly towards the west, the exaggerated accounts of the treasures which the expeditions of the Spaniards — among others that of Cabeza de Vaca, and that of the enterprising Portuguese, Aleyxo Garcia — had met with in these countries; lastly, their usual inclination to attack the less powerful and scattered Indian tribes, and to carry away the prisoners as slaves, were sufficient reasons to induce several Paulistas to undertake this tedious and dangerous voyage. Antonio Pires de Campos took, in the year 1718, the same route, and discovered the gold mines of Cujabá, while he was endeavouring to procure prisoners of the Indian tribe of the Cuchipos. In a few years so great a number of gold-washers flocked to this new

Eldorado, that several villages quickly arose, and a brisk intercourse commenced between this colony and the mother country. The way down the Tieté, &c., was, at first, the only one known, and all necessaries were conveyed by it to the interior. Considering the immense treasures which the mines yielded at that time, (it is said that 400 arrobas of gold were found at Cujabá in the first month after its discovery, *) it was very natural that the adventurers should not think of any kind of work which did not immediately satisfy their thirst of gold. They even neglected to cultivate a sufficient quantity of maize and mandiocca, and the colony, therefore, long remained absolutely dependent upon S. Paulo for its supplies; nay, there was frequently a scarcity of provisions, which, as well as all other necessaries, could not be obtained but at enormous prices.†

The colony was entirely surrounded by hostile Indian tribes. The Payagoâs dwelling on the banks of the Paraguay, and of the *Pantanaës* or the marsh of the Xarayes, which is annually overflowed by the banks of that river, during the rainy season, were a numerous nation, skilled in navigation, and very dangerous to the convoys of the colony, especially when they crossed the Pantanaës. The Guaycurús, an equally numerous and well-mounted tribe, who resided in the grassy plains between the rivers Embotatay and S. Lourenzo, attacked the colonists in the settlements and mines; and having procured themselves some boats, they even pursued the vessels of the Paulistas whenever they got sight of them. The latter, therefore, gave up the navigation of the Rio Embotatay (*Imbótetei*), which was chiefly disturbed by the Payagoâs, and followed the course of the Tacoary, which falls into the Paraguay more to the north; and this route was, in the sequel, universally taken. For the same reason, after the year 1723, the boats of the Paulistas sailed together from the harbour of Porto Feliz, at high water, after the rainy season (in the months of February and March), in order to convey to Cujabá the most important necessaries, provisions, ammunition, and tools for working the mines. Such flotillas often consisted of more than a hundred canoes, accompanied by a military escort. Yet, even these considerable expeditions were attacked, in the first years, by the warlike Indians; and only the increasing population of the gold district was able to keep them gradually in awe. The discovery and the working of the rich gold mines of Villa Bella (1735) augmented the number of the colonists. In the year 1736 a way by land was opened from Goyaz, the mines of which had been discovered twelve years before, and 1500 persons left the gold mines at this place in order to enrich themselves more speedily in Matto-grosso; at a later period the journey from Cujabá to the river of the Amazons, and to Pará (in the year 1742, by Manoel de Lima, on the rivers Guaporé and Madeira, and in the year 1744 by Joâo de Souza on the Arinos and Tapajoz), proved the possibility of an immediate connection between Matto-grosso and Pará. The way down the rivers from Porto Feliz continued, however, to be much the most frequented. Even Don Antonio Rolim de Moura, the first governor of Matto-grosso, went by this way to the new province (1751). It was only when the population of Goyaz increased that the way by land was more used, and that on the Tieté gradually abandoned; so that at present no more than from six to ten boats go annually from Porto Feliz to Cujabá.

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* Corografia Brasilica, i. p. 250.

† In the year 1731 the first brandy was distilled at Cujabá, from sugar-cane planted there; a frasco (some quarts) cost at first ten octaves of gold. The alqueire of maize cost six, of beans, ten; a pound of salt meat, or bacon, two; a plate of salt, four; a fowl, a pound of sugar, or a shirt, six octaves of gold. The daily pay of a gold-washer in some parts, for instance, at Chapada de Francisco Xavier, was still two octaves in 1736. The innumerable quantity of rats, in the first years after the foundation of the colony, made a cat one of the most important domestic animals, and the first two were sold for a pound of gold. *Corogr. Bras.*, i. p. 255.

The capitâo môr of Porto Feliz had, in former years, made some journeys thither himself, and gave us a most discouraging description of the fatigues and dangers to which travellers are exposed. The vessels (*canoas*) which are employed on this voyage are made, like the barks in the lakes of Upper Bavaria, of a single trunk of the *iberóva* or *ximboúva ;* they are from fifty to sixty feet long, five feet and a half broad, three to four feet deep, and can carry a cargo of 400 arrobas, besides the necessary provisions. They are generally made in the beautiful forests on the Rio Piracicaba, which falls into the Tieté about eleven miles to the north-west of Porto Feliz. They are commonly manned by eight persons who, as the narrow vessel will not admit of sails, use only short oars and long poles. The navigation on the Tieté is very tedious on account of its extraordinary windings; unhealthy, from the thick fogs which rise a few hours after sunset; and dangerous, from the numerous waterfalls which must be passed. Though the mouth of the Tieté is only five and forty leagues in a straight line from Porto Feliz, the boatmen estimate the route which they are obliged to take, at one hundred and thirty leagues. The river is full of violent currents, rocks, and waterfalls, thirteen of which cannot be passed without landing half the cargo. The waterfalls of Avanhandavussú and Itapure, the latter of which is only seven leagues above the junction of the Tieté with the Paraná, are still more dangerous; the stream falls, in both places, thirty feet, and it is therefore necessary entirely to unload the boat, and to forward it by land. When the travellers have reached the Paraná, that river, the great waterfall of which, Urubú-Punga, is three miles further to the north, conveys them, as soon as the dangerous current of Iupiá is passed, without hazard, to the mouth of the Rio Pardo, where they generally arrive on the fifth day. The Paraná rolls its immense mass of waters slowly and majestically along in a broad bed, and is said to be even here half a league across. The navigation on it is agreeable, but dangerous when a high wind arises, by which tremendously high waves are dashed against the shallow boats. The eastern bank is generally high and the western low, and both are of white sand covered with woods. The latter cease when the travellers leave this main stream and proceed up the Rio Pardo, which descends through an extensive country covered with grass, with great impetuosity and considerable fall, interrupted by two and thirty cataracts. The navigation on this river is extremely difficult, so that it often requires two months to pass the eighty leagues of its course. In the harbour of Sangue-xuga the boats are unloaded and conveyed on four-wheeled cars drawn by oxen, two miles and a half to the harbour of Camapuâo. Here the travellers meet with the first settlement of inhabitants in this wilderness (*sertâo*), where they may purchase what provisions they want, such as maize, bacon, beans, and dried salt meat. The fazenda of Camapuâo lies exactly half way on this fatiguing route, and is often a place of refuge for the crew, who are frequently all attacked with malignant fevers, caused by incessant hardships, and the damp foggy climate they have travelled through. The government has placed a detachment of soldiers here, whose business it is to protect the fazenda against the attacks of the neighbouring Cujapós, and to assist travellers in conveying their effects over the isthmus.

From this fazenda, the boats proceed down the shallow little river Camapuâo with only half their cargo, till they reach the deeper Rio Cochim. On this river, which winds between steep cliffs and rocks, they have again to pass two and twenty rapids and falls, some of which make it necessary entirely to unload the boat; others, to take out half the cargo. From the Cochim they come into the Tacoary, a considerable river, which is generally about seventy fathoms broad, and has only two falls, the second of which, Belliago, is the last of the hundred and thirteen which the boats have to pass from Porto Feliz to Cujabá. This river comes down with numerous windings through pleasant grassy plains, into the lowlands, towards the Paraguay, and empties itself by many mouths into the main stream. In former times it was frequently visited by the Payagoâs Indians, who came from the lower Paraguay to attack travellers. In order to be able to make an effectual defence, all the canoes which undertake the voyage at the same time, usually assemble in the harbour of Pouzo Alegre, from which they proceed, under the direction of an admiral, chosen from their own body. All travellers agree in the praise of these countries, where they say that the stranger is constantly surprised by an abundance of new and remarkable objects. According to their accounts, these islands and the banks of the river are inhabited by innumerable flocks of birds; the shoals of fish in this river, which come from the Paraguay, are incredible. Palms of singular forms stand upon the banks, alternating with a beautiful vegetation of aromatic grasses and shrubs. The scenery is said to be still more remarkable and pleasing when the travellers have arrived in the canals, between the Pantanaës themselves; thousands of ducks and water-hens rise in the air on the approach of the boats; storks of immense size wade the boundless swamps, and divide the sovereignty over the waters with the terrible crocodiles; sometimes they sail for leagues together between thick plantations of rice, which here grows spontaneously; and thus this solitary tract, which is but seldom animated by a canoe of the Guaycurús engaged in fishing, recalls to mind the plantations and agriculture of Europe. The diversity and grandeur of the scenery announce the vicinity of a great river, and after four or five days journey the navigators reach the Paraguay, which, at this place, is almost a league in breadth, even in the dry season, but during the rains overflows the Pantanaës, and spreads into a vast lake above a hundred square leagues in extent. The navigation, though against the stream, is easy here, and the voyage to the mouth of the Rio de S. Lourenzo or dos Porrudos, is generally made in eight days; from this they at length reach the Rio Cujabá, and in ten days' sail up that river, come to the Villa de Cujabá. The whole voyage occupies from four to five months. While the trade upon the Tieté still flourished, arms, cloth, cottons and white calicoes, glass-ware and pottery, salt, and all other European articles, went by this way to Cujabá and Matto-grosso. The returns consisted in copaiva oil, pichurim beans, tamarinds, resinous gums, wax, guarana, gold-dust, and skins, particularly of the Brazilian otters and ounces. The articles imported by so long and dangerous a route, were at first very dear; but by degrees the prices declined, till they bore a due proportion to those on the coast; especially after the route by land caused the two ways by water, from Porto Feliz on the Tieté, and from Para on the Tocantins and the Araguaya, to be abandoned. The Villa de Cujabá, which, on account of its more healthy climate, exceeds in population and prosperity the Villa Bella, now the Cidade de Matto-grosso, and is chosen by the governor for his residence during one half of the year, is the principal place in the province for the trade, by land, as well as on the rivers.

The Indian tribes, who at first attacked travellers on the river, have now retired for the most part into more distant regions, or have adopted more peaceable dispositions, and come to the river only from time to time, in order to trade with the boats that sail along it. In exchange for European articles, they offer honey, wax, copal, and the fruit of several species of palm. They are principally Cayapós who visit the canoes on their way from the Tieté into the Tacoary, and Guaycurús who show themselves on the rest of the voyage. The Cayapós, also called Caipos, are the most powerful nation in the province of Goyaz: they possess the wildernesses between the western bank of the Paraná and the Paraguay, and around the sources of the Araguaya, and the streams which join it at the commencement of its course, and sometimes extend their excursions further to the north and south. The Guaycurús or Quaicurús, called also Cavalleiros by the Portuguese, inhabit the plains on the two banks of the Paraguay, which are for the most part open and covered with grass, namely, on the east side between the rivers Tacoary and Ipaní, and on the west side to the Serra de Albuquerque.* They are the most numerous and most powerful nation in Matto-grosso, and formidable to all their neighbours. The chief object of their frequent wars, is to make prisoners, whom they carry off as slaves, and keep in very rigorous servitude. There is perhaps no tribe of the South American Indians, among whom the state of slavery is so distinctly marked, as among them. Captivity and birth are the two causes which condemn an individual to slavery. Both of these imply a certain difference of caste, which is maintained with great rigour. The slave or his descendant can never contract a marriage with a free person, because he would profane it by such a union. He is condemned to menial occupations, and is not allowed to accompany his master in war. We were informed that among the Guaycurús, there is no means by which their slaves can be made free. The great superiority of the nation over most of their neighbours, has induced many of the latter voluntarily to become their vassals. Thus there are among them Indians of the nations of the Goaxis, Guanâs, Guatós, Gayvábas, Bororós, Ooroâs Cayapós, Xiquitos, and Xamococós; for they are constantly at variance with all these different tribes, and almost always conquer them, because the possession of horses likewise gives them a great superiority. In former times, they made prisoners only of the youthful portion of their enemies, massacreing all the adults; but their manners have now become milder in this respect. They, however, never were cannibals, and the greater part of the tribe which dwells on the eastern banks of the Paraguay, has been, since the year 1791, in alliance with the Portuguese, whose friendship they sought by an embassy, and which is also secured to them by written conventions; but this is not the case with the rest of the nation, for those of the Guaycurús Indians who possess the extensive unknown lands to the west of the river, have no intercourse whatever with the Portuguese. Among the savage Guaycurús, there are several tribes, such as the Lingoâs, the Cambâs and the Xiriquanhos, the last of whom sometimes even make hostile expeditions against the Spaniards of the province of Santa Cruz de la Sierra. They make use of bows and arrows, a club from two to three feet long, and a lance from twelve to fifteen feet long, which they arm with an iron point. They almost always make their expeditions on horseback, using instead of a bridle, a single cord made of the fibres of the ananas leaves. They wear a bandage round the body, which holds their club on the right side, and their hunting-knife on the left, and by drawing which very tight they preserve themselves, like many other Indian tribes, against the sensations of hunger, to which they are frequently exposed on such expeditions. They guide the horse with the left hand, and carry in the right the bow and arrows or the lance. In their wars with the other Indians and the Paulistas, who engage them by land, they are said to have a custom of driving together large herds of wild horses and oxen, and to let them loose upon the enemy, who being thrown into disorder by this attack, are the less able to make any resistance to them.

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* We mention some of the characteristics of the life of the Guaycurús, in which we follow partly oral communications, and partly the accounts of this nation, given in the Journal O Patriota (July, &c. 1813.), which were written by Major R. F. de Almeida Serra, of the Engineers, and have been copied word for word by Cazal.

The use of the horse among these Indians is as old as the time of their first acquaintance with the Europeans, and it seems that these animals first became known to them on their excursions towards the Spanish possessions of Assumcâo, in which part they had increased with incredible rapidity. Though they are so used to horses, they are not very good riders, and do not venture to tame and break the wild animals, except in the water, where they have less to fear from their restiveness, and are less in danger of falling. Hunting, fishing, and looking for fruits in the woods, are, next to war, the chief occupations of the men. The business of the women is to prepare the flour from the roots of the mandiocca plants, which those who live in Aldeas have begun to cultivate, and the manufacture of cotton stuffs, pottery, and other utensils. Their basket-work of fibres, which they chiefly make of some kinds of palm, are said to excel in beauty and strength those of most of the other Indians. It is probably in consequence of the European civilisation, which has already exercised its influence, in many respects, over this tribe, that the women wear an apron, and a large square piece of striped cotton stuff which serves as a cloak. The men, on the contrary, are quite naked, except the abovementioned narrow bandage round the loins, which is of coloured cotton, and often adorned with glass beads. The face and often the neck and breast of the adult Guaycurús, are disfigured by tattooing, in the shape of diamonds; in the underlip they wear a piece of reed several inches long The hair upon the temples and thence round the head is shorn, like that of the Franciscans. Among them too, the Payés, who are met with in all the Indian tribes in Brazil, and are called in their language Vünägenetó, are greatly respected. These latter are physicians, conjurers, and exorcists of the evil principle, which they call Nanigogigó. Their cures of the sick are very simple, and consist principally in fumigating or in sucking the part affected, on which the Payé spits into a pit, as if he would give back the evil principle which he has sucked out, to the earth and bury it. The Guaycurús differ from most of the Indians of South America, in not burying their dead near the abode of each individual, but in common burying grounds. The accounts of the number of this tribe are in general exaggerated. It is certain, that the whole nation does not at present consist of more than twelve thousand persons, and this number daily diminishes from the unnatural custom of the women, who till they have attained the thirtieth year, procure abortion, to free themselves from the privations of pregnancy, and the trouble of bringing up children.

The third powerful nation, the Payagoâs, who at the time of the discovery of the country were particularly formidable to the Paulistas by their fleets, are now rare in the waters of Upper Paraguay, *i. e.* above the narrow part of the river, at the mountains Feixe dos Morros. As constant rivals and enemies of the Guaycurús, they did not unite with them, till the occupation of their country by the Portuguese; and have hitherto proved the implacable enemies of the latter, menacing them sometimes with open hostility, sometimes by well-contrived surprises and robberies, in which they never spared the vanquished. When they separated in the year 1778, from their allies, the Guaycurús, they disdained to remain in a country, which they could no longer dispute with foreigners, and withdrew to the Lower Paraguay, near Assumcâo, when they submitted to the Spaniards. Unsettled and fugitive, faithless, cowardly, and cruel, despised by the powerful Indian tribes, and feared by the weaker, they act exactly the same part in the waters of the Paraguay, as the Múras in the Madeira and the river of the Amazons, in describing whom we shall return to them. Besides the Cayapós and the Guaycurús, travellers by those rivers hear also of the Icquatôs Indians as inhabitants of Matto-grosso.

Our experienced host at Porto Feliz, had just received orders from the government at S. Paulo, to prepare several large canoes, to convey ammunition down the Tieté to Cujabá. As for a long period, all military stores had been sent to Matto-grosso by way of Minas and Goyaz, this method surprised the inhabitants, who puzzled themselves with conjectures, respecting the object of these consignments. Some imagined that they were destined for Paraguay, to be sent to the Portuguese, who were at war with Buenos Ayres; others thought of an expedition against the eastern province of Chili. In a country, cut off from the neighbouring states, nay, even from the capital, where political events are seldom heard of, every military movement, however trifling, produces general fear and alarm.

At Porto Feliz, the bad construction of the low houses, the walls of which are often covered with a saline efflorescence, the nearness of the woods and of the rivers, which are frequently covered with thick fogs, cause goitres, intermitting fevers, dropsy, and catarrhs, which are almost endemic. We found the grown up persons bloated; and the children of our host, and some neighbours were suffering from a malignant hooping cough (*Tosse comprida*), which we were told not unfrequently ends in consumption. But the same causes which prove injurious to the animal economy, greatly promote the growth of plants. Maize and rice thrive in perfection, and generally produce two hundred and fifty fold. Rice is sown in the hollows, and particularly not far from the rivers, by rows in tufts. On our return from Porto Feliz to Ypanema, we met with a marshy spot in the wood, which was thickly grown with the *Canna indica*, an agreeable discovery, because it removed all doubts respecting the original country of this universally spread elegant plant.* In all these low woods, we observed numbers of a beautiful black crane with a purple neck (*Corvina rubricollis*, Vieill.), and three species of pies, azure blue and white coloured (*Corvus cyanopogno*, Neuw.); parrots, as well as monkeys, became scarcer in this latitude, which may be chiefly owing to the proportionably less heat of the climate. From the Rio Ypanema, the grassy plains, interrupted by a little wood, extend southward to Curitiba, and into the capitania of S. Pedro, which is similar in the nature of the soil, its elevation above the sea, and vegetation, and is adapted to the same purposes of rural economy. In the whole of this extensive part of South America, they follow, in general, the same system of farming which Azara describes as practised in the pampas of Buenos Ayres.

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* Rob. Brown, in Tuckey's expedition to explore the river Zaire, p. 477., likewise considers it as American.

The breeding of cattle is the principal occupation of the inhabitants. Every landholder possesses, according to the extent of his farm, from several hundred to two thousand, nay, even forty thousand head of cattle. They generally reckon from three to four thousand head on an estate which has two square miles of good pasture. All these roam at liberty in a wild state. But every farmer keeps, besides, as many tame draught oxen and cows, as he requires for the purposes of agriculture, and for milk, which is partly made into cheese. The attendance on the wild cattle gives but very little trouble, all that is required is to brand them with the mark of the owner, to castrate the bulls, and to catch the animals intended to be slaughtered. From four to six servants, under the direction of a chief cowherd, perform all these services; they prevent the herds from straying beyond the boundaries, and defend them against the attacks of the ounces, wolves, and wild dogs. These people are almost always on horseback, as their office compels them to ride twenty miles or more in a day; every year the whole herd is collected, at different times, in a place in a high situation, and sometimes fenced in; on this occasion, the mark of the owner is branded on the hind-quarter of the beasts one year old, of which they reckon a thousand annually for a herd of five or six thousand; those two years old are castrated in a very rough manner; and those of four years old and more are selected for slaughter. The catching of these latter, a frequently troublesome and dangerous employment, is executed here as in the pampas of Buenos Ayres, by means of long leathern nooses, which the farmers' servants manage with incredible dexterity. The tame cattle are kept in the vicinity of the fazenda, run free in the meadows duing the day, and are only shut up in an enclosure at night. The flesh of the tame cattle, is preferred to that of the wild, because from their undisturbed and more quiet way of life, they grow fat sooner, and with less fodder. The pasture being so good, their milk is excellent, but a cow gives only a third part of the quantity that good milch cows give in Europe. The hide is always the most valuable part of the cattle; it is stripped off, stretched upon the ground by means of short pegs, a little salted and dried in the sun. The flesh cut into thin strips, rubbed with salt, and dried in the air, is an important article of exportation, from the harbours of S. Paulo and Rio Grande do Sul, to the cities in the north, particularly to Rio de Janeiro, Bahia, Pernambuco, and Maranhâo, where, under the names of Carne seca do Sertâo, Passoca or Carne charqueda, it constitutes an essential part of the subsistence of all the Brazilians, but especially of the negro slaves.

Besides the breeding of oxen, that of horses and mules likewise occupies several farmers in the capitania of Paulo; but is carried on upon a far more extensive scale in Rio grande do Sul; for it may be taken as a fact, that from forty to fifty thousand horses and mules are annually exported from that province to the north of Brazil. The horses of S. Paulo are of a middling size, of slender make, and if they are attended with care, acquire a pleasing and elegant carriage, and become excellent racers. During our stay, a horse-dealer came from Curitiba to Ypanema, when several horses were daily caught out of the herd, and tamed according to the fashion of the country. In general, twenty or thirty of these wild animals herd together, and hardly ever separate. It took some hours before the servants coulddrive a number of them together into a corner, and by means of their nooses catch some of them. The animals so taken, sometimes trembling with fear, sometimes full of impetuous fury, endeavour by the strangest contortions, and the most desperate leaps to defend themselves against the riders. When the latter have at length succeeded in holding an animal fast, by the ears and lips, with a pair of tongs, in putting a halter over his head, and a sheep-skin by way of saddle on his back, one of the servants mounts him, and endeavours to overcome the obstinacy of the horse by means of the whip. After many violent motions and leaps, it is at length so far subdued, that it runs furiously away with its rider, and after a long course, it in some degree yields to the bridle. After being thus humbled, it stands still with its head hanging down, on which all the others separate from it. The next day the same exercise is repeated; and in a few days more the horse is broken and fit for riding. The common Paulistas, and particularly the Piâos (the herdsman's servants), make use of a very small flat wooden saddle, which is often not even covered with leather; their stirrups are so small that they will only admit the great toe. The spurs are fastened to the naked heel. The dress of the Piâo consists of a short jacket, narrow trowsers, and a flat round hat fastened with a strap, altogether of brown leather, made of deer or capivara hides, and is very well adapted to protect him against the thorny hedges through which he must force his way when pursuing wild animals.

The horses are driven together from time to time, in the same manner as the horned cattle, partly to show the farmers of the tithes (*contractadores*) the annual increase of their herds, partly to brand the animals in the first year, and to castrate them in the second. The wild horses are most frequently of a brown colour, very rarely white or piebald, and by their disproportionably short thick heads, and small stature, generally betray their extra European breed. The mules are here handsomer made animals than the horses; they are commonly equal in size to our European horses; their colours are black, brown, fallow, or striped like a zebra. They are preferable to the horses, especially on long journeys, because they can better endure hunger and thirst; and carry with greater security heavier burdens, on an average eight arrobas. At every farm in this part of the country, some common asses are also kept, but this race of animals is by no means so much esteemed here as in the Rio Grande do Sul and in Buenos Ayres, for which reason we had no opportunity of making more particular observations, which we must therefore leave to future travellers in these countries.

We have already mentioned, that in consequence of the general custom throughout Brazil, of using for tillage only places in the woods after the trees have been felled and burnt, agriculture has not been extended so much as it deserves, particularly in the province of S. Paulo, which has such extensive campos. The mandiocca root does not thrive;

and soon rots in the heavy, clayey, and colder soil of the low grounds that are covered with wood; maize, on the other hand, everywhere produces in abundance large and mealy grain. The soil and climate of this country are peculiarly adapted to the pine-apple; the plants often grow wild, covering extensive spots of ground, and in some plantations about the fazendas, the fruit attains an extraordinary size and delicious flavour. They very frequently make part of the dessert, either fresh or preserved in sugar, and a very pleasant and wholesome wine is made of them. A light and agreeable wine is also prepared from the fruits of the jabuticaba (*Myrtus cauliflora*, nob.), which the settlers have taken from the woods on the Tieté and Paraiba, and cultivated in their gardens, and which is one of the best fruits in the country. Our host boasted of his skill in the art of making American wine, and our repast was generally concluded with some glasses of his manufacture. Besides all the members of the happy and patriarchal family, every neighbour or stranger of their acquaintance, who happened to pass that way, partook of the meal. The dinner consisted of simple, but abundant dishes, with boiled beef or pork, a roasted joint of the cavy or the armadillo, &c., which the sons of the family had brought from the woods, then the favourite dish canjica, lastly, a great variety of preserved fruits, which in Europe would be articles of the highest luxury. Sometimes, just before the cheerful company broke up, a guest rose to compliment by some extempore verses one of the company, and particularly the ladies, and the whole party then broke out into the praise of the poet, and of those whom his elegant address had celebrated.

Senhor Ferreira proposed to us to accompany his wife on a journey to Curitiba, where she had to make some domestic arrangements in a fazenda belonging to him. This plan offered us many temptations. The southern part of the province of S. Paulo is for the most part mountainous along the coast; it was formerly diligently worked for the sake of the gold, and offered us an opportunity for the most interesting researches, no less than the part situated farther to the west, which, according to the accounts of the Paulistas, possesses in a high degree all the beauties of the campos. The abundance and variety of the plants, which are besides much more easily gathered and preserved than in the woods; and the number of large beasts of prey, particularly of the family of the ounces, of which we were told; and lastly, the salubrity of the climate would probably have induced us to extend our journey still farther to the south, into countries hitherto unknown and unvisited by any European traveller; but we feared that we should have too little time left to examine the proper mine country, and the capitania of Bahia, or that we should miss the best season of the year.

Besides these reasons we were chiefly induced by the wish speedily to become acquainted with the original inhabitants of Brazil, a wish which we could not easily gratify on a journey to the former countries: for the Indians, who possessed this district before the occupation of S. Vicente and S. Paulo by the Portuguese, have all disappeared, except a few whom we met with in the mission of Aldea da Escada, or who live in the parishes of Pinheiros, S. Miguel, Itapearica, and Carapicuyba, (in S. Paulo,) of S. Joâo de Peruibe (in Itanhaem), or lastly, of Tocoaquecetúba (belonging to Mogy das Cruces); and the savage nations who dwell between the Tieté and the more northern Rio Grande, as well as the Camés in the plains of Guarapuáva on the Rio Curitiba, are in very small numbers, and engaged in continual excursions through the forests, where they very unwillingly meet the more powerful Cajapos coming from Goyaz. It will not appear surprising that the number of the aborigines is so inconsiderable, when it is remembered what dreadful ravages the diseases introduced by the Europeans have always made among them. Even when Anchieta and Nobrega exerted themselves with such paternal care, and so much judgment, to promote civilisation among the Indians on the Piratininga, an epidemical small-pox suddenly carried off two-thirds of the population. * Soon after this,

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* Southey's History of Brazil, vol. i. p. 294.

famine, the system of slavery practised with increased cruelty, similar contagious diseases returning from time to time, and the destructive germs of other disorders, which came in the train of the foreign settlers, were powerful causes to extirpate the population of these countries, which was never considerable. Excursions against the Indians, who roam about in the north-western part of the capitania, to make slaves of them for the service of the fazendas are now strictly prohibited by the government, and are no more undertaken; the Paulista is still used to distinguish this unhappy race, whom he calls Bugres, with an accessory notion of contemptibleness and lawlessness, from the tame or civilised Indians (*Indios mansos*). Those fugitive bands, on the other hand are kept at a distance from the descendants of their oppressors, by invincible aversion, and will, perhaps, become quite extinct in a few centuries.

During the fortnight that we remained at Ypanema, the weather was more favourable for our occupations than we had reason to expect. It rained almost every day it is true, but the violence of the showers continued but a few minutes. The air was remarkably more dry than at S. Paulo. This circumstance we partly attributed to the land-wind which prevailed, and which the signal-flag, erected in front of the house according to the custom of the country, showed to be south-west. Some days too were very sultry, those especially when it did not begin to rain till the evening, during a thunder-storm. But even on these days, we could not perceive any change in our electrometer; the thermometer varied between 12° and 20° Reaumur; the mornings and evenings were usually cool. The vegetable world, revived by the rain, began gradually to put forth, and the trees, in the campos in particular, began to be covered with flowers. The number of animals to be found at this season, was in proportion small. The only monkey we saw, was the brown howling monkey; and of the mammalia, the long-nosed tapir, the agouti, the little armadillo, the papamel, and the forest deer; of birds, hardly any parrots, but toucans, and several kinds of red-necked and blue ravens (*Coracina scutata*, Temmink; *Corvus cyanoleucos*, *cyanopogon* Neuw., *decristatus* nob.); of insects, many large beetles (*Copris*), which live at a considerable depth under ground. As we advanced from this place towards the north, we could not avoid observing that the diversity in the animal as well as in the vegetable kingdom increases towards the equator. Before we departed from this place we sent all the collections we had hitherto made, in chests, by way of S. Paulo and Santos, to Rio de Janeiro; and on the 10th of January, 1818, left the pleasant Ypanema, our kind host, and the honest Swedes, whom, being from the north of Europe, we almost considered as our countrymen.

## NOTE TO CHAPTER II.

The following plants are generally known in the capitania of S. Paulo on account of their uses: —

1. Ayapána. Even L'Heritier, who has described it as *Eupatorium Ayapana*, (Willd. sp. 3. 1769.) recommends it as a very powerful antidote against the bite of venomous serpents and malignant insects. The mode of applying it is this: — A quantity of the leaves bruised, which is to be frequently changed, is laid on the scarified wound, and some spoonfuls of the expressed juice are from time to time administered to the patient, till he is found to be free from the symptoms, particularly the dreadful anxiety.

2. Erva da cobra. *Mikania opifera*, Mart. (*Glabra, caule angulato scandente, foliis lato-ovatis acuminatis, cordatis, repando-dentatis vel subintegerrimis, adultis obtusiusculis, floribus corymboso-paniculatis.*) Allied to *M. scandens*. The expressed juice is used externally and internally; the bruised herb, moistened with oil, is applied as a poultice to wounds caused by the bite of venomous serpents. It is said to effect a crisis, especially by promotion of urine. See on this subject, Gomez, in the Memoirs of the Royal Academy of Lisbon, 1812. ii. p. 23., where this plant is described as *Eupatorium crenatum*. The family of the *compositæ* has many species which seem to

act as specifics against the bite of serpents, and it deserves, on that account, to be more accurately examined. We will here mention only the *Mikania Guaco*, described by Humboldt, resembling our plant, the *Prenanthes serpentaria* Pursch; *Liatris scariosa* and *squarrosa*, W.; and *Milleria Contrayerva*, L.

3. Mil homems. *Aristolochia ringens*, Sw.; *Aristolochia grandiflora*, Gomez, loc. cit. p. 64. tab. 6. The root, which has a very penetrating, disagreeable smell, like that of rue, and a strong, bitter, aromatic taste, produces almost entirely the same effects as the Virginia snake-root (*A. serpentaria*). It is very frequently used in the country against ulcers, paralytic affections of the extremities, dyspepsy, impotentia virilis, in nervous and intermitting fevers, especially those in which a predominant disorder of the pituitous membrane, or the whole lymphatic system has been observed, and, lastly, against the bites of serpents. According to Gomez, loc. cit. the powdered root is given in doses of a scruple, from four to six times a day; the decoction is ordered in doses of four to six ounces, and the juice expressed from the leaves, of one to two drams daily.

4. Jarrinha. *Aristolochia macroura*, Gomez, loc. cit. p. 77. tab. 4. The root and the herb itself surpass in strength of smell and taste the preceding kind of birthwort, and are applied in the same manner.

5. Caiapia *, incorrectly called *Carapia* in the language of the Brasilians, in Portuguese, *Contrayerva*. *Dorstenia brasiliensis*, L. (not *Dorstenia Contrayerba*, as generally supposed). The tuberous root is used like the Serpentaria against nervous fevers and general debility, as well as against the bite of serpents, and when quite fresh, is said to operate

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* From *Caá* folium and *Capyà* testiculus, from the resemblance of the root to the latter.

more powerfully than that, but more speedily to lose its virtue. Sometimes also it serves as a gentle emetic. This plant is frequently confounded with other species of dorstenia, all which, however, are inferior to it in salutary virtue. It is not to be doubted that the *Contrayerva* of the chemists' shops would always have retained the reputation it once enjoyed, if, instead of the weaker Mexican and West Indian species, this Brasilian kind had become an article of commerce. It grows in strong clayey soils, in the mountainous parts of S. Paulo and Minas, whereas the other species prefer the shade of moist woods, and rich mould. In this plant, as is the case with several in Europe, which grow both on low grounds and on eminences; it is observed that those from the mountains are more powerful.

6. JABORANDI. *Piper reticulatum*, L. The roots (and in a less degree the ripe catkins) are used as stimulants on account of their aromatic pungent qualities. The root is a very powerful Sialagogum (promoting salivation), and often cures nervous tooth-ach. The leaves bruised are applied with success to the bite of serpents.

7. PARATUDO. *Gomphrena officinalis*, Mart. (*Hirsutissima, caule adscendente folioso, foliis ovatis acutiusculis mucronatis, floralibus approximatis in involucrum polyphyllum, capitulis hemisphæricis terminalibus, bractearum carina dentato-cristata, calyce basi lanato bracteas æquante. Bragantia Vandelli*. p. 50. ed Roem.) The deep red shining flowers which this plant bears at the end of the low stalk, render it one of the most splendid ornaments of the plains. The thick club root is used by the peasants as a universal remedy against general debility, dyspepsy, cramp in the stomach, intermitting fevers, diarrhœa, &c. In the family of the amaranths, to which it belongs, the appearance of so salutary a plant is remarkable, as very few species of that family possess medicinal virtues.

8. Casca d'Anta. *Drymis Winteri*, L. The bark of this plant deserves the first place among the aromatic tonic remedies of this country. In S. Paulo, Minas Geraës, and Goyaz, the tree is not uncommon in moist places in the campos; but the bark is not yet become an article of commerce.

9. Scitaminias of various kinds have been introduced from India into the gardens of the Portuguese, and almost all of them are used in medicine. The *Amomum Cardomomum*, L. and the *Alpinia nutans*, Rosc., among others, are called pacová; their roots and unripe fruits, on account of their aromatic properties, are employed as stimulants in addition to other medicines; the genuine ginger, too, *Zingiber officinale*, Rosc., and the *Curcuma longa*, L. are here and there cultivated.

10. Periparoba, in Rio de Janeiro and S. Paulo; Caapeba, in Minas Geraës. *Piper umbellatum*, L. The roots of this fine species of pepper have a distinguished place among the domestic remedies of these parts; and it has been used with great effect in obstructions of the abdominal organs, which, together with general debility, are a frequent consequence of intermitting fevers. It increases the activity of the lymphatic system in particular, produces a speedy effect, and promotes all the secretions. The leaves are often prescribed as tea, for swellings of the glands. The fruit of the *Piper peltatum*, which resembles it, and is also called *Caa-peba*, i. e. broad-leaf, is likewise used as a decoction, and is a powerful diuretic.

11. Orelha d'Onça. Several kinds of *Croton*, low hairy shrubs which grow on the elevated grassy plains, furnish in their roots a good substitute for the *Senega*. They stimulate and promote the secretions especially of the pituitous membranes. They are administered with success in atonic catarrhs, asthma, and even in phthisis tuberculosa.

12. Raiz de Pipi, or of *Guinea*. *Petiveria tetrandia*, Gomez, loc. cit. p. 17. A decoction of the whole plant is used in repeated warm baths and lotions, it being considered very efficacious in defective contractibility of the muscles, or total paralysis of the extremities, especially when originating in cold.

13. Fumobravo or Suassuaya. *Agerati species*. Several female practitioners (*Curadeiras*) praise the decoction of this plant as a surprising remedy in inflammatory catarrhs, and affections of the chest. The fresh juice expressed from it, when cleared of the fecula contained in it, is said to act as a lithontripticon.

14. Carachichu or Erva Moira. *Solanum nigrum*, L. The bruised herb is applied either in warm cataplasms, or in baths, in painful wounds, and in general, in inflammatory cases, with a predominant excitement of the nervous system. This is one of the few plants, which, since the settlement of the Europeans have become naturalised, and have spread over the whole of the new continent.

15. Trepoerava, or *Trapuërava*. *Tradescantia diuretica*, Mart. (*Caule erecto glabro, foliis ovato-lanceolatis acuminatis serrulato-ciliatis, subtus pubescentibus, vaginis ventricosis hirsutis longe ciliatis, pedunculis geminis terminalibus umbellato-multifloris.*) The stalks and leaves are used in baths, as a mollifying and saponaceous remedy, in rheumatic pains in the muscles, obstructions of the abdominal functions by cold, &c.; and in spasmodic retention of urine.

16. Asapeixe is the name here given to the *Böhmeria caudata*, Sw. A decoction of its leaves in baths, is prescribed in hemorrhoidal complaints, and is said to produce extraordinary effects. In the northern parts of Brazil, where that plant does not grow, they use, instead of it, several kinds of *Böhmeria* and of *Urtica*. The family of the *Urticacæ* seem, from the favourable results of the general use made of them, to be very useful in disorders affecting

the port vein, perhaps from the combination of viscous, sharp, and alkaline parts in their stalks and leaves.

17. CORDÂO DO FRADE. *Phlomis nepetifolia*, L. The entire plant is used in baths against rheumatic complaints.

18. JURIPEBA. *Solanum paniculatum*, L. The juice of the bruised leaves and unripe fruit is much esteemed, as a powerful remedy in obstructions of the bowels, especially of the liver, and in catarrhus vesicæ. Several other kinds of solanum are used in similar diseases. When applied fresh, they generally act very favourably in cleansing and healing wounds and ulcers.

19. A kind of SOLANUM which Velloso, in his manuscript of the Flora Fluminensis calls *Solanum cernuum*. The decoction of the flowers and leaves is a powerful sudorific, and is spoken of as very serviceable in syphilis, gonor. invet., &c.

20. DOURADINHA DO CAMPO. The leaves of the *Palicourea Speciosa*, Humb., which by their yellow colour have obtained for the plant the name of Gold Shrub, are highly spoken of here as an antisyphiliticum, and the disorder being so common, are much used. The decoction, which in large doses proves a real poison, acts especially by an increased action of the skin and kidneys; and the digestion is not injured by moderate doses. The Douradinha is especially used in the forms of the disease most prevalent here.

21. ERVA MULAR, or CURRALEIRA. *Croton antisyphiliticum*, Mart. (*Suffruticosum, erectum pilis stellatis hispido-scabrum subpulverulentum, foliis lato-lanceolatis, basi cuneatis, inæqualiter duplico-serratis, capsulis hispidis.*) The leaves of this new species produce the same effects as those of the preceding plant, but in a much higher degree. The decoction acts as a powerful stimulant on the nervous system, as well as on all the secretions. Applied in the form of a cataplasm, it is considered as the best means to disperse

buboes, and other glandular swellings. It is said also to have been of very great benefit in white swellings.

22. Another species of the same genus, *Croton fulvum*, Mart. (*Suffruticosum, caule ramisque fulvo-hispidis, foliis subsessilibus ovato-ellipticis basi rotundatis brevissime mucronatis supra piloso-scabris, subtus stellato-tomentosis, junioribus fulvis subintegerrimis, floris sessilibus in spicis axillaribus terminatibusque.*) furnishes, in its roots, a powerful remedy of the same nature as the preceding. It is used in decoctions.

23. Cotó-cotó. The virtues of these leaves are still greater than those of the preceding. A tincture of them is efficacious not only in lues inveterata, but also in other dyscrasies, and in general weakness of digestion, especially against flatulence.

24. Caroba. *Bignonia antisyphilitica*, Mart. (*Caule arboreo, foliis inferioribus duplicato-pinnatis, superioribus digitato-quinatis, foliolis ovatis longe acuminatis glabris, paniculis florum viridium dichotomis, calycibus inflatis, leguminibus linearibus planis.*) The bark of the younger branches of this tree is considered as one of the most powerful remedies against syphilitic swellings, which are of a malignant character. The decoction is chiefly used, and also the bark dried and pounded, externally.

25. Raiz da China branca e rubra, also Japicànga, or Inhapécánga, is the name here given to the woody, often knotty root of *Smilax glauca*, Mart. (*Caule flexuoso-torto angulato aculeato glauco, foliis lato-ovatis utrinque rotundatis tri- vel quinque-nerviis medio nervo aculeatis spinulosa-dentatis glaucis, umbellis breviter pedunculatis axillaribus.*) The Brazilians consider it as a specific against syphilis; but besides this it is much recommended for gout and chronical cutaneous eruptions. In using this remedy, it is taken for granted that the patient will submit to drink an enormous quantity.

26. Sassafraz. *Laurus sassafras*, L. It is found pretty frequently in the forests of the province of S. Paulo, and is

used by the colonists as a purifier of the blood, and likewise as a diuretic and sudorific, particularly in decoction.

27. The root of the *Cissampelos Pareira*, L., which is sometimes called by the general name of Caa-peba, and sometimes *Bútua*, is used by them in the same manner. The genuine Bútua (*Abuta rufescens*, Aubl.) is not found in these parts of Brazil.

28. Carqueja dolce e amarga are two allied species of *Baccharis genistelloides*, Lam., and *venosa*, Pers. On account of the considerable quantity of bitter extractive matter which they contain, and which is combined with a specific aroma, they are particularly useful in all intermitting fevers, and for all disorders in which artemisia is employed in Europe. Both the extract and the decoction are used. It is particularly serviceable in chronical diseases of horses, which are very fond of this herb.

29. Coraçao de Jesu. *Mikania officinalis*, Mart. (*Glabra, caule subsimplici erecto, foliis subtriangulari-ovatis, sinu grosso cordatis, latere dentatis, antice integerrimis, decussatis, cernuis, paniculis corymbosis terminalibus.*) The leaves of this beautiful plant have a beneficial mixture of bitter, mucilaginous, and aromatic ingredients, and are therefore used, with great success, like Peruvian bark and cascarille. It is said to be particularly efficacious both in remitting fevers and weakness of the stomach. It is taken both in decoction and extract.

30. Gajamarióba, *Cassia occidentalis* and *falcata*, L. and Fedegozo, *Cassia hirsuta*, L., are extremely common plants, which grow everywhere near human habitations, and spread rapidly. The root greatly stimulates the lymphatic system, and is therefore very beneficial in obstructions and weakness of the stomach, and incipient dropsy, against which disease it is used as a diuretic. The seeds roasted, like coffee, and used in similar cases, are said

to have nearly the same effects as coffee made of roasted acorns.

31. Urgevâo, or Jarbâo, *Verbena jamaicensis*, L., is used against fevers just as the common vervain in Europe; but particularly the fresh leaves bruised, are applied outwardly to ulcers.

32. Barbasco. Instead of the European kinds of *Verbascum* (not found here), they use the leaves and blossoms of the *Budleya connata*, which have emollient, and at the same time gently astringent qualities.

33. In the same manner they use, instead of the European mallow, the flowers of the *Sida carpinifolia*, L., and several allied species.

34. The leaves of several species of *Bauhinia*, which, on account of its resemblance to the hoof of an ox, is called Unha de boy, are employed when mucilaginous remedies are required.

35. Guiábo, or Guimgombó, seems to have been introduced by the negroes from Africa. It is *Hibiscus esculentus*, L. The young fruit, which contains much vegetable mucilage and an agreeable acid, is frequently eaten boiled, but the leaves are used as softening cataplasms.

36. Carapixo da Calcada. *Triumfetta Lappula* and *semitriloba*, L. The mucilaginous, and at the same time astringent, properties of the leaves and fruit of this shrub, which grows everywhere, especially on the road-side and in the vicinity of dwellings, render it serviceable in injections in gonor. invet.

37. Basourinha or Vacourinha. *Scoparia dulcis*, L. The herb contains mucilaginous matter, and the expressed juice is chiefly employed in cooling purges.

38. Carurú and Carurú vermelho, *Amaranthus viridis* and *melancholicus*, L., as well as the *Phytolacca decandra*, L., are used for emollient cataplasms. These plants

are very common, particularly where the woods have been cleared and cultivated.

39. Erva de Andourinha. *Euphorbia Linearis*, Retz., and *hypericifolia*, L. The milky juice of this little plant is used in ulceribus syphiliticis partium teneriorum. It is singular that there is a notion throughout Brazil, that this juice dropped into a fresh wound in the apple of the eye, immediately effects a cure. We were often assured, that this experiment had been tried with success upon fowls.

40. Jatahy, or Jatehy, also *Copal*, in Minas Geraës Jatobá, is the resin of the *Hymenæa Courbaril*, L. It is used, not only for various kinds of varnish, but also against tedious coughs, weakness of the lungs, spitting of blood, and incipient phthisis pulmonalis. The curadores have a method of mixing it with sugar and rum, so as to make a very agreeable emulsion, or syrup.

41. Great use is made in domestic medicine, both against wounds and syphilitic disorders, of the copaiva balsam, which the Paulistas obtain from two different species of Cupaiva. *Copaifera Langsdorffii*, Desf., and *C. coriacea*, Mart. (*Foliis bi- vel tri-jugis, foliolis ellipticis emarginatis coriaceis reticulato-venosis utrinque glabris subtus glaucescentibus, floribus paniculatis.*)

42. Erva Pombinha. *Phyllanthus Niruri*, L., and *Ph. microphillus*, Mart. (*Suffruticosus, glaber, ramosissimus, ramis pinnæformibus, foliolis alternis obovato-orbicularibus subtus glaucis, pedunculis solitariis geminisve superioribus masculis, inferioribus fœmineis.*) Both kinds are said to be specific against diabetes. They particularly use the decoction of the bruised herb and seed.

43. *Jatropha Curcas*, L. It produces the Pinhôes de Purga, one of the strongest drastica. In a fresh state one seed is sufficient for a good dose. They often occasion a violent vomiting, for which reason the seeds of the following tree are preferred: —

44. ANDA-AÇU, INDAYAÇU, PURGA DE GENTIO, in Rio and S. Paulo; COCCO or PURGA DOS PAULISTAS, FRUTTA D'ARARA, in Minas Geraës. *Johannesia Princeps*, Velloso and Gomez, Memor. de Lisboa, 1812, p. 5., t. 1. *Anda brasiliensis*, Raddi, quarante piante del Brasile, p. 25.; Mart. Amoen. Bot. Monac. t. i. Two or three seeds of this large tree, which Piso knew and described, prepared as an emulsion, act as a very powerful and safe purgative; they seldom excite vomiting. It has been found extremely efficacious in weakness of the lymphatic system, and particularly in general dropsy.

45. GONGONHA, in S. Paulo and Minas Geraës; YAPON, MATTE, YERVA DE PALOS, on the Rio Paraguay. This herb produces the Paraguay tea, which deserves to be reckoned among the officinal plants as a diuretic. According to our examination it is a nondescript species, *Cassine Gongonha*, Mart. (*Ramulis teretibus foliis oblongis basi rotundatis apice breviter acuminatis marginatis remote serratis, racemis axillaribus parce ramosis, floribus sessilibus.*)

46. *Myrtus cauliflora*, Mart. (*Trunco ramisque excorticantibus florigeris, foliis lanceolatis longe acuminatis, basi acutis glaberrimis, floribus congestis, baccis globosis violaceo-purpurascentibus.*) The JABUTICABA is one of the most agreeable fruits in Brazil, and the taste will be improved by further culture. A very good wine, syrup, &c., are made of it. The JABUTICABEIRA grows principally in the provinces of Rio de Janeiro, S. Paulo, and Minas Geraës.

47. *Polygala Poaya*, Mart. (*Perennis, radice subannulata, glabra, caulibus quinquangularibus subsimplicibus erectis, foliis sparsis ovata-lanceolatis acutis trinerviis subsessilibus, floribus terminalibus laxe racemosis cristatis.* Akin to the *Polygala Timoutou*, Aubl., which is different *radice annua, foliis inferioribus ternis, racemis florum densis.*) The root of this plant, which is called POAYA in S. Paulo, is an excellent emetic, the effects and dose of which, when fresh, are almost the

same as the genuine ipecacuanha. See Mart. *Spec. Mat. Med. Brasil. Diss.* I., in the Memoirs of the Academy of Munich, 1823.

48. Several species of *Cactus*, FIGUEIRA DA INDIA, JAMACARÚ, are used in domestic medicine, the juice being administered in bilious fevers; and cataplasms of the fresh stalks and fruit, bruised, applied to ulcers.

49. CRISTA DE GALLO, *Heliotropium curassavicum*, L.; PICÃO, *Bidens leucantha*, W. and *graveolens*, Mart. (*foliis decupatus oblongo-lanceolatis crenato-serratis, basi cuneata integerrimis, reticulato-venosis, floribus longepedunculatis subpaniculatis*); likewise FEDEGOZO, *Cassia hirsuta*, L.; and, lastly, *Spilanthis brasiliensis*, L., are pounded together to a pap, and laid fresh on malignant ulcers, or scirrhus pectoris.

50. *Perdicium brasiliense*, L. The decoction of the roots, which have a strong smell, is considered as a good remedy for excessive menses.

51. SIPÓ JOBATA. The seeds of a climbing plant, which bears large berries, and is perhaps akin to the Feuillaea, which are known by the name of *Castanhos do Sobotá*, are given pounded, in doses of two or three drams, in dyspepsy and weakness of the organs of digestion.

52. SIPÓ DE CHUMBO. *Cuscuta umbellata*, H.; *C. race-* Mart. (*floribus pedunculatis cymoso-racemos, et corollis calyce duplo longioribus pentandris fauce squamis ciliatis clausa*), and *miniata* Mart. (*racemis pedunculatis sex- ad octo-floris, corollis fauce squamis ciliatis clausa, genitalibus inclusis*). The juice of the fresh plant is prescribed in sub-inflammatory complaints, hoarseness, spitting of blood. The powder of the dried plant is strewed on fresh wounds, the healing of which it is said much to promote.

53. *Psidium Guajava*, Raddi, di alcune specie di Pero indiano, p. 4. Of the fruit of the cultivated variety (*Psidium pyriferum*, L.), and still more of the rough and sour fruit of

the wild (*Psidium pomiferum*, L.), they make with sugar a cooling and rather astringent conserve. The berries of other species of Psidium, which grow plentifully on the campos of S. Paulo, and are distinguished by the name of GUABIROBA, are used in a similar manner. The young bark and leaves are used as astringents, the latter also for medicinal baths, which are very customary in Brazil.

54. ACAJÚ. *Anacardium occidentale*, L. The gum of this tree, which in its properties almost entirely agrees with the gum arabic, but is rather more astringent, is used in Brasil in the same manner. The bookbinders in the principal towns sometimes wash the books with a solution of it, which is said to keep off the moths and ants. The fresh acid juice of the flower-stalks is used in lemonade; wine and vinegar too are made of it by fermentation. The sympathetic effect is remarkable, which the nut, borne about the person, has upon chronical inflammations in the eyes, especially such as are of a scrophulous nature.

# CHAPTER III.

## JOURNEY FROM S. JOÂO DE YPANEMA TO VILLA RICA.

The plan which we had laid down for the prosecution of our journey, was to reach Villa Rica by the end of the rainy season, and then during the dry months to make excursions in various directions through the sertâo of Minas Geraës during the dry season. The road leads first to Ytú; but we previously paid another visit to Villa de Sorocaba, where the capitâo môr had already prepared a house for us, because he hoped that we should pass some weeks there, and benefit the neighbourhood by giving medical advice. We could not however accept his invitation, though our presence would have been more advantageous to the place, as the only surgeon was ill. We were introduced to this patient; he was a mulatto, a gloomy hypochondriac, whom a few applications of magnetism threw into convulsions, and then into a sound sleep. After we had prescribed the medical treatment necessary for him, we immediately set about purchasing the mules of which we were in want. These animals may be obtained of superior quality, and on the most reasonable terms, at Sorocaba, because a great trade in them is carried on from this place to the north of Brazil. It is calculated that above thirty thousand mules are annually brought from Rio Grande do Sul, through Sorocaba; a tribute from one thousand two hundred and eighty to two thousand rees for each is paid to the crown, on its entrance into the new capitania. This duty is one of the most lucrative for the government, because it is repeated with certain modifications on the frontiers of every province. The price of these animals, which is from twelve to five and twenty piastres, is hereby doubled and tripled by the time they get from this place to the northern capitanias of Bahia, Pernambuco, and Ceara, to which droves are sometimes led through the interior of Minas, particularly along the Rio de S. Francisco. Mules from Spanish America, which are much handsomer, taller and stronger, are but seldom seen in Brazil, their importation being prohibited. A traveller who intends to proceed from Rio to visit the interior of the country, will do best to go by sea to Santos, and then come to this place where he may in the shortest time and with the least expense, collect his troop of mules, and every requisite for his journey.

From Sorocaba to the little town of Ytú, which is six leagues distant, the road, which is very fatiguing, leads N.W. over hilly land, alternately covered with bushes and grass. The mountain Araasojava overlooks the neighbourhood, in which a sandstone, similar to that at Ypanema, baskets out in several places. Except two small hamlets of inconsiderable houses in a beautiful, open, and flowery plain, there are scarcely any traces of human cultivation; for the forests, in the cleared parts of which the plantations of the inhabitants are situated, are at a distance from the road, in the hollows and valleys. We were assured that in these forests the tree grew which produces the Peruvian balsam (*Myroxylum peruiferum* L.) and which is called Capriúna or Casca de Ytú. We were not so fortunate as to obtain a sight of it. The Villa de Ytú, the capital of the comarca of the same name, and the residence of an ouvidor with whom we had become acquainted at Ypanema, is situated at the foot of a hilly and pleasant country, and consists of several rows of small and regularly built houses. Some streets are paved with slabs of a bluish grey compact limestone, six feet in length, which is said to be quarried in the neighbourhood.

From Ytú we advanced N.W. by the side of beautiful thick woods, and enjoyed a delightful view of the valley of the Tieté, which is now entirely cleared of the forests, and planted with sugar-cane, beans, maize, &c. The vine, too, thrives here as well as in Sorocaba. About a quarter of a league from Ytú, we passed a wooden bridge over the Tieté, which makes its first considerable fall not much farther down. From this place the road ascended into the mountain, which here, too, consists of a coarse-grained granite with reddish felspar quartz, and a little mica. Large detached pieces of rock, rounded off by the water, lay upon the road and scattered through the forest. The higher we ascended the more desolate and gloomy did the way become; at the height of about one thousand eight hundred feet above the level of the sea, we again met with those extensive and thick plots of bamboos (*Taguara*) which on the granite wooded mountains of this region occupy the land between the forests and the campos, and are the chief features in the physiognomy of such countries. The vegetation particularly resembles that of the higher points of the Serra do Mar, towards which the mountain chain extends, as a communicating branch to the Serra do Mantiqueira. We were just in the most savage and solitary part of the mountain when several thunder-storms came up, which the wind drove with such fury that they resembled a furious hurricane. Wet through and through, and exhausted with fatigue, we reached at nightfall some miserable huts, called Jacaré, in the middle of a rude plain covered with bushes. As the country became more lonely and wild the difficulties of the journey appeared also to increase. The next morning we discovered that several mules, though they were tied together with ropes, had run away from the pasture, and when we at length found them, the Arrieiro, whom we had brought with us from Rio de Janeiro, was missing.

Tired with the hardships of such a journey, he had decamped, and carried with him everything of value that he could find. In this critical situation we had no resource left but to perform the necessary business of the tropeiros ourselves, and to continue our journey with the rest of the drivers. After advancing five leagues farther, we reached the village of Jundiàhy, wet through by the rain, which had not ceased during our march through the woody mountain.

The Villa de Jundiàhy*, a small place on a low hill, derives all its importance from its favourable situation for the inland trade. All the tropas which come from the capitania of S. Paulo to Minas Geraës, Goyas, Matto-grosso and Cujabá, are organised here for this long expedition. The inhabitants possess large herds of mules, which perform this journey several times a year. The manufacture of pack-saddles (*cangalhas*), saddles, shoes, and everything necessary for the equipment of the tropas; and the incessant arrival and departure of large caravans, give the place an appearance of activity and prosperity, and justly acquire it the name of a land port (*porto seco*). Paved roads lead from this place to the above-named provinces. The journey to Villa Boa de Goyaz is completed in one month, to Cujabá in two months. The chief articles exported to S. Paulo, which is ten leagues distant, and to Santos, are mandiocca roots and flour, maize, and sugar, and the returns consist of salt, iron goods, and European manufactures of all kinds (*fazenda secca*) to be employed in the inland trade. In the environs of this villa, hills alternate with moist valleys, woods with open campos, where many powerful medicinal plants are found. Among others we were shown the Poaya (*Polygala Poaya*, nob.), the roots of which are universally employed in the country instead of the genuine ipecacuanha, and almost in the same doses. There is also a sort of Peruvian bark, which is taken from a moderately sized tree with large leaves; it has considerable bitterness, but very little aroma, and is often sent to Rio de Janeiro.

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* The name belongs to the Lingua Geral: *Jundiá* a small fish, *Hy* the water, the river.

We were obliged to the activity of the capitâo môr of Jundiàhy for procuring us a new Arrieiro, who immediately repaired the pack-saddles, and on the evening of the following day, conducted us two leagues forward on the road to Minas. The way gradually ascends from a swampy tract, covered with thick bushes. Farther towards the north we came to an extensive mountain plain (*campo largo*) which was adorned with a rich diversity of beautiful mountain plants.* Two higher mountain ridges which run parallel from north to south, of picturesque forms, something resembling our lower Alps, partly covered with wood or young brushwood (*Capoeira*) skirt the plain. The highest point over which the road passes is the Morro de Catetuva; from which we descended into a broader valley, overgrown with young wood, which is bounded on the east by the Parapixinga, a pretty high wooded mountain of rough outlines. About the poor village of S. Joâo de Atibaya, the country becomes broader. We met here with a pupil of the surgical school of Rio de Janeiro, who observed to us with much *naïveté*, that the inhabitants of this country were not at all worthy of having a surgeon among them, because they were so seldom ill. In fact these healthy districts are peopled by a robust race of men, and only the syphilis makes great progress among them, chiefly for want of proper treatment. Northwards of S. Joâo de Atibaya, several chains of mountains run almost parallel to each other The rock is a kind of granite, and the extensive growth of the brake (*Pteris caudata*) which is unfavourable to agriculture, indicates the want of active cultivators. Boa Vista, the highest part of the mountain which we ascended, may be

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* Among the bushes of the *Paspalus chrysostachyos*, Schrad. which characterise the campos, there are many Wedelias,

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Gaudichaudias, Büttneria, Cnemidostachys, Palicureæ, Declieuxias, Escobedia scabrifolia, Eryngium lingua Tucani nob., &c.

about 2500 feet in height. From this there is a delightful view over a neighbouring valley, at the bottom of which stands a solitary chapel. The Morro de Lopo, almost everywhere covered with sombre woods, and at least 3000 feet high, commands the whole range of mountains. It was formerly the abode of numerous American wolves (*Lupus mexicanus*); these animals seem now to live more in Minas Geraës, where we also saw them for the first time. The road meanders in various turnings through the mountains, the valleys of which become narrower the higher you ascend. The chief formation is still granite, in which there occur beds of hornblende rock. Except a few wretched huts inhabited by mamelukes and other people of colour, there are no traces of men in this solitary tract. The araucarias which grow on the declivities of the mountain, harmonise with the sombre character of the landscape. Their straight and lofty stems do not branch out till a great height from the ground, and the boughs thickly covered with acerose leaves, unite in a broad, dark green, pyramidal crown. These majestic trees always standing distinct and only touching with their crowns, form long avenues with a flat roof, which are inhabited by flocks of green parrots (*Psittacus æstivus*). The araucaria is the only tree of the natural family of the protea, which we met with during our whole journey;

they appear, indeed, to be more rare in the southern hemisphere than in the northern.

After two short stages from Atibaya we reached the frontier of the capitania of S. Paulo, where a custom-house is erected at the foot of the mountain, at which the passports of travellers are examined, the royal import duties on goods and slaves are levied, and persons stationed to prevent the contraband trade of gold dust and diamonds. The import duty on a new negro had lately been raised so that the owner had to pay 10,000 rees (ten dollars); a similar tax is paid at the frontier of every capitania, which is a proof that this extensive kingdom is not yet properly organised as one consistent whole. We were treated with great politeness; and, in deference to the recommendation of the portaria, every service was offered. Here, as every where in Brazil, it is customary not to countersign the passports when, like ours, they contain a special order of the king, a custom which is advantageous to the traveller, because it leaves him at the liberty to choose or to alter his route. The frontier is formed by high mountains, which are, for the most part, covered with thick wood, through which only a few by-roads, impassable a great part of the year, lead to Minas. Subordinate layers of sienite are here and there contained in the granite, which consists of reddish quartz, felspar and small foliated black mica. After we had passed the Morro Grande by a dangerous road, we came to a level plain at the foot of the prolongation of the Lopo mountain, which here rises picturesquely in four hills, where we reached the first place in Minas Geräes, the Arrayal de Camanducaya. The few inhabitants immediately hastened out to meet us, but contented themselves with gazing at us and detaining us by useless questions. In the great rancho, which we here first met with, according to the custom of Minas, we expected to repose after the fatigues of our journey, but found ourselves greatly disappointed; for, just as we were going to retire for the night, we were assailed by such an incredible number of fleas, that in Europe they would have been considered as a natural curiosity.

To the north of Camanducaya, after passing Rosetta and Campiuh, we again arrived between ragged mountain chains, which are covered with campos, run from north to south, and form side valleys towards the west. The rock is generally a reddish granite. We could not expect to make a closer examination of the country, for since we had quitted Jundiàhy we were incessantly attended by all the evils of the rainy season. We travelled almost constantly enveloped in thick fog; the temperature was low; for several days together the thermometer, morning and evening, was 14° R., and it hardly rose a few degrees higher at noon. The numerous mountain streams had overflowed their banks to a great distance, the roads were broken up by them, the bridges carried away, and the low grounds suddenly converted into lakes. A traveller who has never had to endure, out of Europe, similar struggles with weather and roads, and at the same time with anxiety for the conveyance of valuable effects, can scarcely form an idea of the hardships of such an enterprise. Exposed from morning to night to torrents of rain, we were obliged to direct our whole attention to the guidance of the mules, which could scarcely proceed in the bottomless roads; we were forced either to wade or to swim through the overflowed mountain streams which we had to pass. If in the evening we at length met with an open shed, or a dilapidated hut, we had to spend the greater part of the night in drying our wet clothes, in taking our collections out of the chests and again exposing them to the air. Often we had not even the comfort of resting ourselves round the fire, because the wet wood emitted more smoke than flame. In this gloomy wilderness we met with but a few huts, chiefly inhabited by mulattoes, and, besides milk and black beans, no kind of provision was to be expected.

This unfavourable weather, before the commencement of which the inhabitants are engaged in planting or sowing, and by which they are prevented from pursuing any occupation out of doors, from hunting and travelling, seemed to be an invitation to them to enjoy entertainments at home.

The Brazilian is of a lively disposition, and fond of pleasure. Almost everywhere, when we arrived in the evening, we were saluted with the sound of the guitar (*viola*), accompanied by singing or dancing. At Estiva, a solitary farm-house, with fine extensive campos bounded in the distance by mountains, the inhabitants were dancing the baducca; they scarcely learnt the arrival of foreign travellers when they invited us to be witnesses of their festival. The baducca is danced by one man and one woman, who, snapping their fingers with the most extravagant motions and attitudes, dance sometimes towards and sometimes from each other. The principal charm of this dance, in the opinion of the Brazilians, consists in rotations and contortions of the hips, in which they are almost as expert as the East Indian jugglers. It sometimes lasts for several hours together without interruption, alternately accompanied with the monotonous notes of the guitar, or with extempore singing; or popular songs, the words of which are in character with its rudeness; the male dancers are sometimes dressed in women's clothes. Notwithstanding its indecency, this dance is common throughout Brazil, and the property of the lower classes, who cannot be induced, even by ecclesiastical prohibitions, to give it up. It seems to be of Ethiopic origin, and introduced into Brazil by the negro slaves, where, like many of their customs, it has become naturalised.

On the following day, as it rained incessantly, and we were enveloped in thick fog, we could not advance more than four leagues on the muddy road, and thought ourselves happy to meet at nightfall with an abandoned hamlet, of which we took possession after having expelled the bats. Our guide thought it dangerous to proceed any further because the river Mandú was so swelled by the rains that the passage over it could not be effected except by daylight. The environs of our night's quarters showed traces of former cultivation, though now run wild. Single guava and calabash trees (*Psidium pomiferum*, and *Crescentia Cujete*, L.), loaded with fruit, stood round it, and the gourd (*Cucurbita Lagenaria*, L.) had entwined so as to form high hedges.

The following morning, when, after passing several swelled mountain streams, we descended into the valley of the Rio Mandú, we found that this river, which is at other times inconsiderable, had overflowed its banks to the extent of above a quarter of a league, carrying down with it, in its turbid waters, whole trees and little islands composed of bushes of myrtles, sebastianias and chomelias, which it had rooted up along its banks. After having shouted a long time, a small boat rowed by two mulattoes at length appeared, which was not large enough to contain a sixth part of our baggage. We ourselves rode with great danger a quarter of a league farther through the overflowed meadows, which, besides, were full of holes, and had the beasts of burden driven after us till we reached a spot rising above the water, where the boat waited for us, and where the people and the baggage were successively embarked. The mules were then all fastened to a long rope, one behind another, and driven into the river, where they swam after the boat, the people in which endeavoured, by continual calling, to encourage them. All reached the other bank in safety, and we soon after had the satisfaction of seeing the baggage also landed without receiving any damage. We had the more reason to congratulate ourselves on escaping this danger, for we learnt upon our arrival, that a caravan which had crossed the preceding day had lost some animals.

The village of Mandú, situated in a low country almost entirely covered with wood, was founded five and twenty years ago by a capitâo, its position being favourable for the trade from Taubaté and Quarantinguetá to Minas. By this route, the Paulistas import European goods, and take, in return, cheese, marmalade, tobacco, and some coarse cottons. The Caldas da Rainha, a warm sulphureous spring, which is two days' journey to the west of this place, and has lately become very famous, likewise contributes to the number of persons who visit this hamlet, which consists only of a few poor clay huts. On the following day, we experienced similar difficulties in crossing to the north of Mandú, similar overflowings caused by the rising of the Rio Servo. The woody tracts were inundated to the depth of four to six feet, and the road, which was also under water, was gullied into deep holes. As it was necessary to lead every mule through separately, we were unable to proceed on this day more than three leagues, at the end of which we reached the pleasant hill on which stands S. Vicente, a small place consisting of a few houses. But here we were first assailed by a new torment, namely, the tick (*Acarus*), an ugly, flat, brownish insect with a sharp proboscis, of which there are several kinds, some not bigger than the point of a needle (*Carabato miudo*), and others considerably larger; the latter, by continual sucking horses and horned cattle, often attain half the size of a hazel nut. The inhabitants erroneously consider both the large and small to be of the same species, differing only in age. They generally cling unseen in thousands to the blades of grass, and, at the slightest touch, attach themselves to the traveller, and give him inexpressible uneasiness by the violent itching which they create.

To the north of Rio Servo, and about two miles from Mandú, we perceived the first traces of gold-washing. The rock is a quartzy, white or whitish green mica-slate, which here and there shows a dip from S.W. to N.E., and upon it lies a considerable mass of red heavy loam, from which the metal is washed. The mica-slate, in which there are beds of quartz with black common shorl, seems to lie upon sienite, which, in some points, chiefly in deep valleys and declivities, is detached and exposed to view. The greater part of this tract is covered with wood, which surrounds the new plantations of maize, mandiocca, and a little sugar-cane. The other branches of agriculture are neglected, because the inhabitants can purchase almost everything they require with the gold which they procure by washing.

At S. Anna de Sapucahy, two leagues to the north of S. Vicente, we found the gold-washing (*Lavras*) of more considerable extent. At a distance they resembled skilfully erected fortifications. Trenches several feet deep and broad, were dug upon terraced declivities for the purpose of conducting the rain water into the opened sides of the red loam. The washed loam was here and there thrown together in high heaps, or covered large tracts of land, through which artificial furrows were drawn. The whole presented a melancholy picture of wild desolation, in which even the roads are not spared; and a view of it is the more painful to the traveller, since at the first place where he sees gold obtained, he finds, instead of hard money, paper currency and all the misery which it produces. In the capitania of Minas Geraës, in the place of the smaller current coin of 10, 20, 40, 80, 160, and 320 rees, there have been circulated for about fifteen years, printed notes which are worth, according to the standard, a vintem of gold ($37\frac{1}{2}$ and not 20 rees), and are issued by the four gold smelting houses in the capitania. The object of this measure was partly to remedy the real scarcity of copper coin, and it was partly an advantage to the government to get into its possession in exchange for such notes, the smallest quantities of gold dust which were current as small coin. The injury which this measure did to private credit and morality, was soon doubled by the appearance of a great quantity of forged paper. The slovenly execution of these notes greatly facilitated the forging of them, which the hatred of the inhabitants immediately ascribed to the English. The province is now deluged with these notes, and suffers the more from it, because the amount is not diminished either by being exchanged by the smelting houses, or by being disposed of in other provinces.

The river Sapucahy*, which flows through these countries before it unites with the Rio Grande, opposed, towards the evening, invincible obstacles to our progress; at several places where we attempted to pass through it, the bridge having been carried away, it was so deep and violent, that it was with the utmost difficulty we saved the first mule that was driven in. We therefore gave up our purpose of reaching the fazenda on the opposite side that day, and encamped in the open air in a valley surrounded by low woods. A fine damp fog, which fell during the whole night, and constantly threatened to extinguish our fire, benumbed us with cold. Our situation was rendered still more disagreeable in the morning, by missing our negro slave. The fatiguing march through a country almost everywhere overflowed had excited disaffection in the young negro, who did not know how to appreciate our kind treatment of him, and embraced the first favourable opportunity to abscond, which new negroes frequently do. As we could discover no traces of him, we pursued our journey to the fazenda of S. Barbara, which we had intended to reach on the preceding day, there to take the necessary measures for discovering the fugitive. We were received with true German hospitality, and the owner of the estate, Jozé Antonio Almeida, sargente môr e administrador da real fazenda, who did not return home till the evening from a visit to remote plantations, made us easy respecting the fate of our fugitive. In the province of Minas Geraës, as well as in several other capitanias, where the number of negro slaves in the interior renders double care necessary, there is a particular corps called capitâes do matto, who are chiefly mulattoes or other people of colour, whose business it is to pursue every fugitive slave and bring him back to his owner, or the proper authorities. It is only runaway slaves, who have an accurate knowledge of the country, and retire to a great distance, that sometimes escape the vigilance of this police; we were therefore assured, that as our negro was rude and inexperienced (*negro bruto*), we might depend upon his being soon discovered. In fact, he was brought to us on the following day from a neighbouring fazenda; in the reception we gave him, we followed the advice of our host, treating him, according to the custom of this place, very kindly, instead of using harsh language, endeavouring to obliterate the remembrance of his flight, and giving him a full glass of brandy. Long experience has taught the Brazilians, that this beverage and complete amnesty have better effect on the temper of new negroes than any chastisement.

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* *Sapucaya* pitcher tree, *Hy* water, river.

The immediate environs of S. Barbara are low woods, and fine grass plains and moors, which are frequented by snipes, goatsuckers, and a kind of owl, and produces a great number of beautiful myrtles, rhexias, melastoma, and labiated flowers. The Sapucahy, the banks of which are overgrown with bushes of inga and sebastiania, meanders sometimes through the plain, and sometimes between low mountain forests, and abounds in fish; gigantic serpents, a small kind of caiman, and Brazilian otters are frequent in it. We saw in the woods many of the trees from which the gum anime is obtained (*Hymenæa Courbaril*, L.).* They are here called Jatobá or Jatai. Between the bark and the wood of this tree, which in its growth resembles the elm, there are in proportion but a few interstices filled with fluid gum; the far greater part of it is found under the principal roots, when they are bared of the earth, which, in general, cannot be done, without felling the tree. Under old trees, pale yellow round cakes, weighing from six to eight pounds, are sometimes found, which have been formed by the gradual filtering of the liquid gum. The purity and colour of this substance, principally depends on the nature of the earth in which these cakes are found, for the brown mould or moor soil imparts to them certain ingredients, which are not found in the dry, clayey, or sandy soil. The finest part of the gum, however, is that which exuding from the bark chiefly in the dry season, in the months of September and October, is collected by the inhabitants in the form of drops, and melted over the fire. The formation of those large masses of gum between the roots, seems to throw some light on the origin of amber, as it is very conceivable that this vegetable substance may have been partly accumulated in the ground, in a similar manner, under the trees which produced it, before it was received and rounded by the sea. Insects too, particularly ants, are also found in the pieces of the Jatai gum, as in amber. The Cayapós, and other Indian tribes on the Rio Grande, on the banks of which the hymenæa forms extensive woods, form this gum into ornaments, shaped like a club or a spindle, which they wear in holes, bored in the nose and underlip. Of the thick bark of the tree they make small canoes, which, on account of their lightness, are peculiarly adapted for land carriage from one river to another. Many lofty crotons also grow on the banks of the Sapucahy. A red resinous matter is obtained from them, which the inhabitants call dragon's blood, and use for dying.

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* We met with several kinds of hymenæa, all of which produce gum.

In the extensive fazenda of S. Barbara, we found the principles of a prudent and well-calulated system of agriculture carried into practice, which have been but lately acted upon in this province, since the produce of the gold mines has begun to decline. In former times, gold-washing was the only source of the riches of Minas, and the landowners even neglected to cultivate what was necessary for the subsistence of their slaves, who were occupied exclusively in that employment. The gradual diminution of the amount of gold procured, has, at length, induced them to turn their attention to their fruitful lands. Our host, it is true, still delivered annually about a thousand crusadoes in gold, as royal tribute, but the chief source of profit was his maize, farinha, beans, and some sugar-cane. His stores of the first of these were immense, and filled several large barns (*Pajol*) up the very roof. The sugar-cane is pressed in a small mill, belonging to the fazenda, is used partly to make rum and treacle, and sold to the neighbours. The ashes of dried bean-stalks, from which the beans are threshed with long poles on a dry floor before the house, are employed in making soap, which is, however, very impure, and never becomes hard. Attention is paid too to the breeding of horned cattle. A herd of six hundred supplies the whole establishment with meat, milk, cheese, and leather. Thus the most important wants are provided for by the produce of the fazenda, which is very favourable, not only to the prosperity, but also to the moral character of the inhabitants. This is especially evident in the situation of the slaves, who, under such circumstances, are healthy and cheerful, and live with their masters on a truly patriarchal footing.

When we had crossed the Sapucahy in boats, and paid a few pence toll for each mule, we arrived over two woody mountains, into a beautiful valley, which is formed on the left, by the Serra de S. Gonzalo, and on the right by the Serra de Paciencia. Both are covered with fine forests, and are distinguished by outlines closely resembling those of our lower Alps. The country through which we passed, lies high, and the vegetation of the plains has an Alpine character; the extensive hills are clothed with bushy grey-green grasses, numerous lysianthias, declieuxias, büttnerias, escobedias, and small-leaved apocynum, but the low grounds with small bushy trees. The rock is chiefly light yellow granite, with small scaly black mica, on which the red auriferous loam lies. The village of S.Gonzalo, which is three leagues north-north-east from S. Barbara, possessed above thirty years ago, very considerable gold-washings, and enjoyed great prosperity, the instability of which is testified by several handsome but half-decayed buildings. Most of the inhabitants, however, still obtain from two to four thousand crusadoes from their mines, which is a great advantage to them, provided they do not at the same time neglect agriculture. Along the road from S. Gonzalo to Villa da Campanha, we met everywhere with indications of the principal occupation of gold-washing; the trenches, in particular, by which the water required is led from the highest parts of the country, are often of surprising extent, and run for leagues along the declivities of the mountains. Here, too, the mountains consist of granite, which not unfrequently passes into gneiss, and the felspar of which is almost entirely decomposed into kaolin. We often saw great tracts entirely decomposed into loam of a white or bright violet colour; for the felspar has the first colour, as the chief ingredient of the rock of this country in general, and it gradually acquires the latter by decomposition. The mica is of a silver colour, or greenish; the mass of the quartz is proportionably small; here and there veins of quartz traverse the rock in manifold directions, and these always abound in disseminated gold. The Mineiros, however, do not look for and follow them, except when the surrounding rock is so entirely disintegrated, that it yields the profit they seek, without being worked according to the proper rules of the art of mining.

The Villa Campanha, or properly Villa da Princesa da Beira, which we reached early in the day, it being only four leagues to the north-west of S. Gonzalo, is situated on a high hill, and is, next to Villa de S. Joâo d' El Rey, the most important and populous place in the comarca do Rio das Mortes. The gold mines in the neighbourhood, some of which have been worked only a few years, are among the richest that are now worked, and have diffused great opulence among the inhabitants, among whom we became acquainted with our countryman, Mr. Stockler, brother to the governor of the Azores. There are here many pretty houses of two stories which have glass windows, one of the most expensive articles of domestic comfort in the interior of Brazil. But it appeared to us that luxury and corruption of morals kept equal pace with the progress of riches and commerce. As physicians we had especially occasion to remark the incredible extent of syphilis, and its incalculably fatal consequences to the health and morals of the inhabitants. Not only does the universality of the contagion most seriously tend to diminish the population, but the unblushing openness with which it is spoken of destroys all moral feeling, and violates, in particular, the rights of the female sex, who are not allowed any influence over the sentiments of the men, and in the formation of happy marriages. This melancholy state of things, which is the darkest side in the picture of the Brazilian character, is rendered still worse by the numbers of imported negro slaves and of concubines (*mulheres da cama*), to which state the mixed descendants of both races in particular degrade themselves. As the manual labour of gold-washing is performed entirely by slaves, the perverseness of the whites disdains, as dishonourable, every similar employment, even those of agriculture and tending cattle; in consequence there are so many idlers that they are usually distinguished as a separate class, under the name of *Vadios*. The traveller, therefore, sees here with the splendour of the greatest opulence, all the images of human misery, poverty, and degradation. The inhabitants, whose wants even their rich and teeming soil cannot satisfy are always instituting invidious comparisons between their country and the northern districts of Minas, which they describe to strangers as the true Eldorado, where, with the enjoyment of greater riches, European manners, civilisation and luxury are already introduced, and to which they are much inferior.

We left Villa de Campanha the next morning, having first parted with our troublesome fugitive, that we might not run the risk of again losing him, to the Juiz de Fosa, who had just lost several negroes by a fall of earth in his mines. From this time (the 14th of February) the rainy season in this latitude seemed to be quite over. This circircumstance and the confidence we could repose in our honest guide, a Paulista of Jundiàhy, who relieved us from all care about the mules, the procuring of the supplies, and the proper packing of our chests, enhanced the pleasure of the journey through this country, which appeared to become more beautiful and interesting at every step we advanced.

It is usual in Minas to complete the day's journey without halting. We therefore travelled every day from six or seven in the morning to two or three o'clock in the afternoon, when we unloaded at a rancho, or more rarely in the open fields, where only water was to be had. The mules were fed with maize and after being carefully examined to see whether they were in good condition, were driven to the pasture; the same meal was prepared as in the morning, with the addition of the birds and monkeys we had shot upon the way; and our baggage was arranged in such a manner to be best protected against the rain, according to the local circumstances. If there was reason to fear a visit from the ounces during the night, the camp was surrounded on all sides with watch-fires, and care taken, during the day, to procure a sufficient supply of wood. During our march we had had opportunities to collect observations on the country we had passed through, and on the plants, minerals, &c., found in the vicinity of the road. After the caravan was encamped we employed the remainder of the day, for similar purposes, in excursions in the neighbourhood; and the hours of twilight and the beginning of the night were spent in writing notes in the journals, in preparing, drying, and packing our collections. This simple mode of life had its peculiar charms, which were increased by reciprocal participation of the pleasures arising from our discoveries, or by conversations in which we often called to mind our distant European friends. Lastly, music, too, made a part of our daily amusement; for we never lay down to rest till the violin of one of the travellers had played some artless Brazilian popular airs, succeeded by German melodies, which combined the agreeable sensations of the present with the remembrances of our native land.

Our first encampment after Villa de Campanha was in the Arraial do Rio Verde, a small village situate in a beautiful green plain bounded by woods, on the rivulet Rio Verde which is half as broad as the Paraiba river, and flows from hence to join the Sapucahy, and across which there is a tolerably good wooden bridge. The bridge gate was not closed during the night, and several of our mules, as is the custom of those animals, had returned back by the way they came, for which reason we could not immediately pursue our journey the following morning. It happened to be a holiday, and about a hundred of the inhabitants of the neighbourhood assembled in the church to hear mass. This edifice, like most of the country churches in Minas, is small, and built only of clay and wood, without steeple, organ, or internal ornaments. The want of all these things gives to the service a simplicity which, as well as the presence of all the members of the families, even the youngest, imparts to this religious assembly, in a country so backward in civilisation, an affecting character resembling the first Christian meetings.

To the north of Arraial do Rio Verde we crossed pleasant plains covered with lively verdure, and in the bottoms with thick bushes. Numerous apes called Miriki or Mono (*Brachyteles Hypoxanthus**), which inhabit the neighbouring forests, uttered their loud and discordant cry: yet we did not succeed in getting near to the noisy troop, for at the slightest motion that they perceived in the bushes, they immediately fled with dreadful clamours. Another curiosity which the zoologist met with on this road, was one of the most poisonous serpents of the country, called Urutú, which is two feet long, of a dark colour, with brownish stripes, and has the mark of a skull upon its head. Like all the other species which are notorious for their poison, for example, the surucucú*, the jararacuçu, also called the schiraraca †, and the jararaca-mirim or *de rabo branco* ‡, it lives chiefly in forests, on damp dark places on the ground, under stones or rotten wood, and its bite is said to occasion almost certain death. Nothing terrifies the Brazilians so much as the fatal bite of these animals, which being so numerous are very frequently met with. The few surgeons in the interior of the country almost entirely decline prescribing for the bite of serpents, and rather leave it to the people called curadores, who use a mysterious mode of cure, and for this reason possess the confidence of the common people in a higher degree than the physicians, though they cannot always boast of success. Shooting pains in the limbs, irresistible lassitude, giddiness, vomitings, pains in the eyes and temples, burning in the back, blindness, bleeding at the eyes, nose, mouth, and ears; sometimes, but not always, violent salivation, swelling of the face, insensibility, mortal weakness, anxiety, fear of death, tremblings and convulsions succeed, if the poison takes its full effect, in the space of a few hours; and the patient expires within four and twenty hours after the bite of the rattle-snake, and in a still shorter time after that of the Jararaca-mirim, with the most dreadful convulsions and sometimes with symptoms of hydrophobia, so that the curador who often lives at a distance comes too late, though no time has been lost in sending for him. If the venom has not been so powerful, and the curador therefore finds it possible to effect something, he generally begins by sucking the wound, causes the patient to be conveyed into a dark chamber, carefully guarded against every draught of air, and administers to him himself a great quantity of decoctions of certain herbs and roots internally, and poultices of the same medicines on the wound. One of the most efficacious and commonly used remedies, are the leaves and roots of a rubiacea (*Chiococco anguifuga*, Mart.*), which is known in the country by the name of Raiz preta or de Cobra, and, in its external qualities, especially in the pungent, penetrating, and disagreeable smell, much resembles the Senega and Valerian. The patient must drink great quantities of the decoction; and the poultices of the fresh-bruised leaves and roots are frequently repeated, alternately with those of several other plants, for instance, the lóco (*Plumbago scandens*, L.), which draws blisters, the picâo (*Bidens graveolens*, nob. and *leucantha*, W.), the erva de S. Anna (*Kuhnia arguta*, H.), and the *Spilanthes brasiliensis*. If the use of the Raiz preta produces considerable evacuations, hopes are entertained of the cure, and violent perspiration is considered as a particularly favourable sign. The same remedies are then administered without intermission for several days together, till the patient, though very weak, gradually recovers his former features, which, at the beginning, are almost always disfigured like those of a corpse. For some days after the bite, the curador does not quit the bed of the patient for a moment. When he is seized with a shuddering or weakness, he rubs him with spirits, or endeavours to recover him by breathing on him, or by fumigation with aromatic herbs. The curadores affirm that the cure cannot be pronounced complete in less than sixty days after the bite; for that till that time the patient is still in danger of dying, if not suddenly in the abovementioned fearful attacks, yet of a slow nervous fever. They forbid him during this time to be near a woman who has just recovered from sickness, to remain out of bed longer than while the sun is up, or to take any animal food but such as is very delicate. The proceedings of the curador are always accompanied with a certain degree of quackery, and several circumstances prove that the method is properly derived from the negroes and Indians; and, in fact, the art is chiefly practised by old free negroes and mamelukes. Women on the other hand, who otherwise have the first place in the surgery of the Brazilians, but very rarely undertake to cure the bite of serpents; and a mulatto assured us that they were not qualified to do so till they were fifty years old, because till that age, as he expressed himself, they are themselves poisonous. We met with many persons who had been saved from imminent death after the bite of venomous serpents; they however always remained weak, and were troubled for life with swelled and ulcerated legs.

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* Spix, Sim. Bras. fol. tab. xxvii.

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* Bothrops Surucucú, nob.

† Bothrops Neuwiedii, nob.

‡ Bothrops leucurus, nob. (Spix, Serpent. Bras. 4to. tab. xxii. xxiii.)

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* C. foliis ovatis acuminatis glabris, racemis paniculatis axillaribus foliosis. (Vide Von Eschwege's Journal of Brazil, Part I. p. 225.)

The Rio do Peixe, which is less than its neighbour, the Rio Verde, flows also into the Rio Grande, and passes near the Fazenda S. Fé, comes down from the side branches of the Mantiqueira, and is said to have formerly yielded much gold. The few houses which we saw in its vicinity, by no means indicated the opulence of the owners; yet the inhabitants of this beautiful and healthy country, which is commanded by the romantic summits of the Mantiqueira, appear to find the gratification of their wishes in the produce of their numerous herds. The agreeable coolness and repose which we enjoyed here reminded us of the pastures of our native Alps, and we advanced with increasing pleasure, and more lively interest, the nearer we approached the centre of Minas.

To the north, four miles beyond the Rio do Peixe, near a solitary chapel called Campo Bello, where we found a great number of loose garnets of the size of a hazel nut, the road to the Villa de S. Joâo do Principe divides into two branches; the western goes more into the valley by way of Boa Vista, Brambinho, and the Arraial das Lavras de Funil, it is more populous and rather longer; the eastern leads through the mountains along unfrequented by-paths. We preferred the latter, because we were unwilling to descend from this serene region, where we could indulge without interruption in those cheerful feelings which on mountains, as it were, reanimate the soul of the traveller. The friendly, truly patriarchal reception which we met with on the summit of this lonely rock in a solitary farm, the Fazenda do Corrego dos Pinheiros, was in perfect unison with our feelings. They seemed to be here much accustomed to the society of their neighbours, and every one whom the owner had given permission to unload was considered as a guest, without having anything to pay for beyond the maize for his mules; this hospitality and friendly disposition is met with in a great part of Minas.

We had scarcely entered it when a thunderstorm arose with such extraordinary fury, that we had double reason to congratulate ourselves on having found an asylum under so hospitable a roof. It was a sudden storm, such as very rarely occurs in the temperate zone. In a quarter of an hour the whole turmoil of the elements had subsided, and the slopes of the valley, from which the rain poured down in torrents were in a few minutes dried by the sun. The host's numerous sons meantime exerted themselves to entertain us by singing their simple popular songs, which they accompanied with the guitar. The most celebrated poet of Minas is Gonzaga, formerly ouvidor of S. Joâo d'El Rey; but having, at the beginning of the French revolution, taken part in a seditious tumult, he was banished to Angola, where he died. Besides the songs of this poet, which have been published under the title of "Marilia de Dirceo," numbers of others are current in the mouths of the people, which afford equal proof of the delicacy of the muse of the unfortunate poet. Such is the little song "No regaço, &c." which we here caught as it was sung to us. When Brazil shall have one day a literature of its own, Gonzaga will have the glory of having attempted the first anacreontic tones of the lyre on the banks of the pastoral Rio Grande, and of the romantic Jequitinhonha.

On the Corrego dos Pinheiros, which resembles a Tyrolese Alpine summit, a new formation of rock commences. The hitherto prevalent granite and gneiss is succeeded by that form of the mica or rather quartzy slate, which is generally called elastic sandstone, and thin layers of which are in the direction of hour 8 of the miner's compass, and have an inclination of 60° to 70°. In the valley below we first met with a similar blue talc-like quartz-slate. Being overtaken by a storm on the following day near the Capella de S. Antonio, we took shelter in the Fazenda de Parapitinga, half a league from the Corrego dos Pinheiros. It lies at the foot of the Serra Branca, a high mountain of mica-slate, the bold outlines of which had formed for some days the boundary of our prospect. From this place, we ascended that mountain, over the ridge of which the road led for several miles. The extensive view which we enjoyed from it afforded us an opportunity of forming a just notion of the principal mountains of this district. On our left we had the mountain of Capivary, on our right the Serra de Ingahy, both of which run parallel with the Serra Branca, from S. S. W. and S. W. to N. N. E. and N. E., and all branch out, almost in right angles, from the Serra de Mantequeira, the main stem of the mountains in Minas. These mountain chains, most of them covered to the very summit with pleasant campos, have a level, far-extended ridge, from which, side branches stretch into the valleys, and connect the single chains. Here are no frightful clefts or gigantic rocky summits, rent into threatening forms; the eye, on the contrary, reposes in the view of not very deep valleys, and of beautifully rounded hills, adorned with pastures, down the gentle slopes of which clear streams here and there descend. The traveller does not here meet with the impressions of those sublime and rugged high Alps of Europe, nor on the other hand, those of a meaner nature; but the character of these landscapes combines grandeur with simplicity and softness, and these are among the most delightful which we met with between the tropics. As the broad tops of the sarcophagus-formed mountains, rise almost to an equal height (between three and four thousand feet), and the valleys, shaped like a trough, are not very deep, this whole part of the mountains might be called an undulating plateau, in which the Serra de Mantiqueira is gradually lost on the western side. The Serra das Lettras, which has excited the interest of the common people by strange dendritic figures of the white flexible quartz (or Gelenk quartz), which is frequently eaten away, lies but a few miles from this place, and belongs entirely to the same formation. In places, for instance near the huts called Capivary, at the foot of the serra of the same name, we found on this quartzy mica-slate, a much decomposed clay-slate, of a carnation or greenish colour containing garnets, and the direction of this clay-slate was more south (*i. e.* S.W. or S.S.W.) than that of the mica-slate. The mica or quartz slate is white or yellowish, of a fine granular structure, and appears to be incumbent, sometimes upon granite and sometimes on a lilac-coloured granite-gneiss, in which there are garnets and black shorl. We had frequently seen such gneiss standing out near Villa de Campanha and on the Rio Verde. All this part of the mountain is less rich in gold than the northern tracts. But, on the other hand, Flora has more lavishly endowed it with a diversity of flowers. The rhexias, in particular, are a great ornament. There is an endless variety of species, all low shrubs; the numerous, thin, profusely-leaved stalks, are covered with beautiful red and violet-coloured blossoms. Stately stems of blue vellosias and gay barbacenias*, the representatives of the liliaceous plants, principally adorn the stony eminences. Of the family of the gentians, there are many species of lisianthus, which call to mind the equality of the diffusion of certain families, through very remote countries.

At the bottom of the valley, we crossed the little river Ingahy, which, as well as the Capivary which joins it, carries the tribute of its waters to the Rio Grande. The solitary spot was just then animated by numerous caravans, conveying bacon from the interior of Minas to Rio de Janeiro, and which had encamped in the valley. This branch of trade is carried on, chiefly from the country about Pitangui, to a great extent with the capital, which it partly indemnifies for the want of fresh butter. We had scarcely reached a rancho near these strangers, and had the baggage piled up round us, when we were invited by the inhabitant of the only hut in the valley, to share his dwelling with him. His unanswerable argument, that the roof a Portuguese soldier was preferable to any encampment in the open air, were it even in Paradise, could not fail to induce us to accept his offer. The old man, who had served forty years in the line, and had taken part in many an incursion (*entrada*) against the Cajapós Indians in Goyaz, and the Puris in Minas, was a model of loyalty, and thought himself happy to be able, in this solitary country, to exercise the police out of pure love for his king and country. Several of the leaders of the caravans encamped here laboured under chronical diarrhœa from rheumatic causes, against which they had in vain tried the guarana; this is a paste of the fruit of a hitherto nondescript plant*, and the general remedy used by travellers, who are connected with Goyaz and Matto-grosso, against similar attacks, dysentery, &c., of which we shall have occasion to speak at length, in the course of our narrative.

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* *Vellosia aloæfolia* (Mart. nov. gen. tab. 7.), *Barbacenia tomentosa* (Ibid. tab. 11.).

The road to S. Joâo d'El Rey, goes N.N.E. obliquely over the mountain of Capivary, the N.W. declivity of which is much less steep than the south-eastern. On that side near to a chapel, granite occurs with yellowish felspar, black mica, and white quartz, instead of the white quartz-slate, which is always much decomposed. In a deep narrow part of the valley, we came to the Rio Grande, the source of which is not far off to the S. E. in the mountain of Juruóca. The stream, which at this place is not more than five toises in breadth, is confined in a high rocky bed, surrounded by the most pleasant campos and hills, and here forms a very considerable cataract, the thundering noise of which re-echoes in the valley. Immediately above the cataract is a wooden bridge, which is in constant danger of falling in the fury of the torrent. At this place, called Ponte Nova, which must be passed on the way from S. Paulo to the principal places of Minas and Goyaz, a frontier custom-house has been erected, in the neighbourhood of which a few settlers have established themselves. The frequent frauds upon the customs, and particularly the exportation of gold dust and diamonds from Minas, seem to have given occasion to this precaution. When at some future time, with the increase of the population, the commerce of Minas and Goyaz shall become more considerable, this point may become important as the staple place of the navigation of the Rio Grande. From this place you may not only proceed on the great river towards the south, namely to Paraguay and thence to Buenos Ayres, but it is possible, by means of the rivers which fall into it on the north, to reach, within a few miles, Villa Boa, the capital of Goyaz. The branches of the Rio Grande, which descend from the north, namely from the Montes Pyreneos, and the neighbouring Serras de S. Martha and Escalvado, are not yet sufficiently known; however, the voyage undertaken by Captain José Pinto in the year 1816, from Villa Boa, to find a way by water to S. Paulo, has so far cleared up the geography of those countries, that a communication between the principal sources of the Rio Grande and the streams of Goyaz may now be anticipated. For, if a person embarks in the harbour of Anicuns, twelve leagues from Villa Boa, the capital of Goyaz, on the Rio dos Boys, the rapid stream of the Rio Turvo and the Rio de Pasmados, into which it falls, will bring him in a short time into the Rio Paranahyba. Three leagues below the junction of those rivers with the latter, the boats have a great waterfall to pass, as far as which the wandering Cajapós Indians who dwell on the lower Paraná, sometimes extend their incursions. The junction of the Paranahyba with the Rio Grande, from which the stream takes the name of Paraná, is stated by Captain Pinto to be only twenty leagues from that cataract, and the navigation up the Rio Grande, as far as Ponto Nova, to be indeed difficult, on account of the strong current, but not interrupted. The almost boundless extent of the inland rivers, and the numerous collateral streams, hold out the most favourable prospect for the inland trade of these fruitful countries.

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* Paullinia sorbilis, Mart.

While the naturalist is highly interested in considering the geography of the Rio Grande and its collateral streams, on which he contemplates the probability of a future extensive inland trade, he is especially attracted by the nature of the country through which it flows. The whole system of the rivers, which it and its collateral, the Paranahyba, receive during the whole of their extensive course, descends from mountains which are distinguished, above many others, as much by their height and extent, as by their especially belonging to that formation which contains such immense quantities of gold. On the east, the picturesque Serra Mantiqueira forms the principal boundary; towards the north-east the Serra Negra, Da Canastra, Da Marcella and Dos Cristaës, constitute the boundary between it and the Rio de S. Francisco. On the north side the principal mountains of Goyaz, namely, the Montes Pyreneos, and their branches, divide the great valleys of the Araguaya and the Tocantins from that of the Rio Grande. All these mountains, which are chiefly composed of quartzy mica-slate, contain on both their declivities the richest stores of that metal. They form the principal stem of all the Brazilian mountains of the interior, and in them arise three mighty streams, the Tocantins, the Rio de S. Francisco, and the Paraná, which flow in three very different directions to the sea. The country through which the latter flows, which extends from 17° to 28° S. latitude, and from the meridian of S. Joâo d'El Rey (47° 55′ W. of Paris) to that of Buenos Ayres (60° 51′ 15″ W. of Paris), and comprehends a great part of the capitanias of

Minas Geraës, S. Paulo and Paraná, has nearly the same physical character through this great extent. Only the north-eastern tract, from which the river rises, and the eastern boundary, are traversed by those mountains, among which we had hitherto travelled, and the nature and formation of which we have attempted to describe. Farther to the west the land is either level, or broken only by gently rising hills and insulated mountain ridges, through which, for the most part, that quartzy mica-slate (flexible quartz) is diffused, constantly accompanied by iron, platina, and gold. On the east side, the river is joined by several considerable streams, the Tieté, Paranapanema, and the Iguaçu or Curitiba, all of which have a rapid course frequently interrupted by cataracts; the Rio Pardo, which rises in the mountains of Camapuâo, is the only considerable collateral stream on the west side. The low lands, and particularly the banks of those rivers, are covered with thick, but not very high forests; the other, and by far the greater part, of the surface, is overgrown with bushes and grey-green hairy grasses, and forms those boundless plains, the pasture of numerous herds of cattle, to which the inhabitants, on account of their uniformity and extent, have given the name of Campos Geraës. Among the bushes, which here and there occupy great tracts in these plains, the matte or gongonha shrub (*Cassine Gongonha*, Mart.), the dwarf acajú (*Anacardium humile*, Mart.), and innumerable species of malpighia, myrtles, and guava (*Psidium*), are the predominant and characteristic forms.

The rocks, according to the accounts which we were able to obtain, resemble, in the greater part of this tract, what we had ourselves observed on our road; namely, primitive, *i. e.* mica-slate or granite. Lime is said to be very rare; for which reason the inhabitants of the province of Paraná use, in erecting walls, a kind of clay (*tabatinga*) which forms strata here and there by the side of the rivers, and which is burnt white in the fire. In the character of its climate too, this whole river district has the greatest uniformity; as the elevation above the level of the sea, in the most northern and mountainous part, makes up for the greater distance of the southern part from the equator. Neither the heat nor the cold are excessive in this healthy district; but hoar-frost is not unfrequent upon the mountains during the cold months (from May to October). The mean heat of the year appears to be rather below than above 15° or 16° Reaumur's thermometer. The difference between the temperature of the water and the air, as well as that by day and by night, is proportionably greater than in the lower latitudes. Thunder-storms generally come from the N. and N.W., and the prevailing wind, during the cold season, S.W. and W. The cultivation of the sugar-cane succeeds in the low grounds near the rivers, but is not extensive; very few attempts have hitherto been made in coffee planting; on the other hand, maize and several kinds of beans, and, in the more southern parts of the country, wheat, corn, and flax, produce a plentiful crop. Fruits of Caucasian origin, particularly apples and peaches, thrive, as well as all European vegetables.

A traveller who goes from S. Paulo to Villa Rica, will easily perceive, on accurate observation, that the general appearance of the country gradually changes when he has passed the boundary, from which the waters flow southwards to the Rio Grande, and northwards to the Rio de S. Francisco. While the Rio Grande, with the thundering noise of its fall, here takes leave, as it were, of its native mountains, to flow to the lower countries towards the west, it at the same time prepares the wanderer for grander scenes of nature, which await him as he advances farther to the north. The mountains become more lofty and more steep; the valleys deeper; massive rocks, on the summits or in the vale, more frequently interrupt the verdant slopes and plains; the streams flow with a more rapid course; sometimes he finds himself on elevated spots which command a sublime prospect of manifold insulated mountain tops and profound valleys, sometimes he is enclosed between steep and threatening walls of rock. All objects assume more and more the features of a romantic or Alpine country. We advanced north-east from the passage of the Rio Grande, upon hills which form a connecting branch between the Serra de Capivary and Serra de Viruna, and have many loose fragments of iron-stone, among which is hematite, lying on their surface. The country is poetically rural, but lonely and desolate. The great and extensive forests which run along the declivities of the valleys, and bound the feeding places of the several fazendas, are almost the only indications that the land is inhabited, as the farms are, for the most part, concealed in side valleys. At one of these fazendas, called Vittoria, where we passed the night, is a large rancho built of stone. The arrangement of these houses is similar to that of the caravanseries in Persia and India. Every traveller has a claim to the use of them, for which he gives nothing to the owner, except that he usually pays him a trifle for every mule which is put for the night in the enclosed pasture.

From this place the road leads N.N.E. over several rounded mountains, either wholly bare or sparingly covered with some composite flowers, rhexias, and grasses, and which connect the main branches of the Serra Mantiqueira that run from S.E. and N.W. A short distance before we reach the last of these high mountains, Morro de Bom-fim, we passed the Rio das Mortes, which winds through the pretty broad swampy valley with its black waters, and having received some tributary streams, joins the Rio Grande twenty miles from S. Joâo d'El Rey. It was in this valley that the Paulistas once, quarrelling from lust of gold, destroyed each other in a sanguinary contest, from which the river has derived its name. The Morro de Bom-fim is very steep, and therefore very difficult of ascent for beasts of burthen; it consists of strata of flexible quartz, and on its bare, broad, long-extended ridges, has an abundance of fragments of quartz. From its summit there is a noble prospect over the whole valley of the river; and as soon as we descend at the other end of it, of the Villa de S. Joâo d'El Rey, formerly Villa do Rio das Mortes, which lies at the foot of the bare mountain Lenheiro, only half a mile from the river from which it derived its former name. The many mountains by which this little town is surrounded, the numerous dazzling white houses, and the little river Tijuco which flows through the middle of it, and is often nearly dry, give it a pleasant romantic appearance. A great number of country houses, scattered on the declivity, lead to the solid stone bridge, which is thrown over the abovementioned river, and unites a part of the town lying along the eminence with the larger portion in the plain. The stranger, especially after such long privations on a journey in the interior, is rejoiced to find himself in a little commercial town. Paved streets, stately churches, adorned with native paintings, shops well stored with all European articles of manufacture and luxury, various work-shops, &c., announce the thriving state of the place, which, on account of its inland trade, is one of the most lively in Brazil. The Villa de S. Joâo d'El Rey, so called after King John V., is, like Villa Rica, Villa do Principe, Sabará, and lately, Paracatú, one of the capitals of the five comarcas in the capitania of Minas Geraës; namely, of the comarca das Mortes, which is about fifty miles in diameter. The town itself has a population of 6000 inhabitants, only one third of whom are whites, a supreme judge (*Ouvidor*), a gold-smelting house (*Casa de fundiçâo do oiro*), a Latin school, an hospital, a house of correction, where for the most part murderers are confined, several chapels, and four churches, among which, the handsome metropolitan church is distinguished. Though the environs of the town are very mountainous and bare, and seem also to be thinly peopled, yet in the clefts of the mountains and the valleys many fazendas are scattered, which furnish the necessary supplies of maize, mandiocca, beans, oranges, tobacco, and likewise a small quantity of sugar-cane and cotton, above all, cheese, cattle in abundance, swine, mules, and, together with the streams that are full of fish, provide them with sufficiency of food.

In former times, the chief occupation of this people was searching for gold. They obtained it partly by washing in the stream, partly out of some shallow trenches (*calderoês*) which are cut principally in the massy parts of the quartz veins of the mountain Lenheiro, which consists of white elastic quartz. The fruits of this labour having now become uncertain and trifling, less regard is paid to it; and only the poorer people now continue to wash gold dust from the gravel of the stream, in order, by the sale of it, to provide the most urgent necessaries for their subsistence. The greater part of the gold dust which is melted into bars by the smelting house here, comes from the Villa de Campanha, and the neighbouring S. Jozé; in both which places it is washed from the loam which abounds there. Instead of the gold mines, it is now the inland trade which daily increases the prosperity of this little town; we were told that the comarca was formerly indebted 40,000 crusadoes to Rio de Janeiro, but that since the arrival of the king it had not only discharged this old debt, but had put out to interest there a large capital of its own. What a brisk trade is carried on here appears from the fact, that four constantly employed caravans, each of fifty mules, annually go backwards and forwards to the capital, conveying thither, bacon, cheese, some cottons, beaver hats, horned cattle, mules, fowls, and gold bars, for sale; and bring back, in return, European goods, chiefly Portuguese and English, such as calicoes, handkerchiefs, lace, iron-ware, wine, porter, liqueurs, &c. Here, as everywhere in Minas Geraës, the rich people are very obliging to strangers, especially when they bring letters of recommendation from their acquaintance. However singular it appears, it is yet certain and observed by every traveller, that the inhabitants of Minas are entirely different both in character and person from those of the other capitanias, and particularly from the Paulistas. The Mineiro has in general a slender lean figure, narrow breast, long neck, oblong face, black lively eyes, and black hair on the head and breast; he has naturally a noble pride, and something very delicate, obliging, and sensible in his outward behaviour; he is very temperate and seems particularly to be fond of a romantic way of life. In all these features, he much more resembles the lively Pernambucan, than the gloomy Paulista. Like the former, he seems to have a certain predilection for foreign productions and dress. Like the Englishman, the Mineiro is very fond of clean linen and white garments, particularly on holidays. His usual national costume differs from that of the Paulista. It generally consists of a short jacket of calico or black velveteen, a white waistcoat with gold buttons, the smallclothes of velvet or velveteen, long boots of undyed leather, which are fastened above the knees with buckles, and a beaver hat with a broad brim, serves at the same time instead of a parasol; the sword, and often the musket, together with the umbrella, are his inseparable companions whenever he goes any distance from home.

Their journeys, however short, are never made but on mules. Their stirrups and bits are of silver, and the handle of the great knife, which sticks in the boot below the knee, is of the same metal. In these excursions the women are always carried in litters, either by mules or negroes, or dressed in a long blue pelisse and round hat, sit in a kind of arm chair fastened upon a mule. Their dress, except the head, which is only protected by a parasol, is in the French fashion, the borders of their white robes are frequently ornamented with embroidered or printed flowers, and gallant verses.

We did not stay long at S. Joâo d'El Rey, because we expected that everything relative to the gold-washing, and the geognostic particulars of the mines might be examined with more advantage at the capital, Villa Rica.

The road from this place leads towards the N.E., on the western declivity of the Serra do S. Jozé, which, on the whole, has a barren appearance, and takes its direction from S.W., to N.E. Beyond this mountain stands the little town of S. Jozé, which has nothing particularly remarkable, except its principal church, which is the handsomest in all Minas. Some of the inhabitants in this valley have planted European fruits in their gardens with great success, they have likewise made trials of oats, barley, and rye; the latter species of corn seems however not to thrive so well, running up into stalk, rather than forming ears, which, besides, ripen at different times, or bring the grain suddenly to maturity so that it falls to the ground. On this side of the mountain, along the road, no trace of agriculture was to be seen, but all the campos lay dry and desolate as far as to the fazenda of Canduahy, three miles from S. Joâo, and to the place called Lagoa Doirado, which is at the same distance, in the vicinity of which there are several gold-washings, that were formerly very rich. It happened to be a fair or holiday. Some booths had cottons, calicoes, hats, iron-ware, gunpowder, &c., for sale; the negroes who were present formed groups, and played their miserable music on a wooden instrument with some twisted silk strings, accompanied by two sticks, which, by being rubbed together, produce a grating sound. The neighbours by degrees arrived upon mules, to go to mass; but they seemed to be more interested by the purchase of the goods offered for sale, to supply their domestic wants, than by the common amusements. After divine service was over, we continued our journey, and to our great joy, got out of the dry campos, which were much exposed to the sun, into a low forest, some miles in length. As soon as we had passed this, we found ourselves in a romantic spot. The campos, diversified by grass, shrubs, and some small trees, sometimes rising in hills, through which narrow valleys wind, sometimes covered with fragments of rocks, resembling ruins, became more and more beautiful and striking. After two days' march by the chapel de S. Eustachio, and the fazenda de Camaboâo, we passed the river Paraöpeba by a wooden bridge. From this river the labourers have washed a great deal of iron-sand, which they call tin-sand, and which, on an accurate analysis, we found to contain admixed chromium and manganese. Senhor Da Camara, the intendant of the diamond district, had the goodness, when we were at Tijuco, to give us a considerable quantity of it. On our left hand lay the mountains of Camaboâo, then the Serra Negra, which forms the boundary between the comarcas of Rio das Mortes, and of Sabará. On this tract the granite in several places stands out, and the white quartz or talc-like mica-slate, in the direction of S.W., is incumbent on it. A small species of palm* was often scattered on the road-side; it was just then in flower, and bees of various species hovered about it.

We left the small hut, which had received us at the Ponte do Paraöpeba, before daybreak, in order to avoid the heat of noon. The country about us continued to assume a character of grandeur, which reminded us of the Alps of our native country. All nature was reanimated; we rode with feelings of pleasure through the morning mist, and breathed a delicate cool air, filled with the fragrance of the pretty Alpine flowers, spangled with dew, which were just opening their blossoms in the grass at our feet. Rhexias, melastomas, declieuxias, lisianthus, composites, &c., of the most diversified forms, stood all round us. We had ascended to a considerable height up the side branches of the Serra de Congonhas, which rose to the west in beautiful outlines, when the fog gradually sunk under us, and the varied tops of the mountains, reddened by the first beams of the sun, appeared above the grey ocean of vapour. A number of anús-brancos uttered their shrill notes in the campos nearest to us. This morning offered us a delightful pleasure; we here enjoyed a sunrise like that upon our Alps, but rendered more beautiful by the luxuriance and charms of the tropical nature. From the highest point of the mountain the way led us down into a deep and narrow valley, in which we crossed the little river Congonhas, which flows from that place westward to the Paraöpeba. A much steeper mountain, the Morro de Solidade, rose directly across our road, which the mules ascended with great difficulty, by a narrow slippery path. From its summit, a magnificent prospect lay before us of an extensive country, intersected by high and low mountains, covered, for the most part, with pastures, but here and there with dark forests; the Arraial das Congonhas do Campo, surrounded with its red lavras, lay solitary at our feet. The basis of this massy mountain is the same granular quartzy mica-slate which we have already frequently mentioned;

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* Cocos flexuosa, Mart. Palm. Bras. fol. t. 82.

incumbent upon it to a great thickness is a very fine mica, approaching talc-slate, of a white, bluish-yellowish-greenish, grey, or brownish colour. The direction of this rock, which occurs in strata of very different thickness, is on the whole from S.E. to N.W., *i. e.* contrary to what we observed on the whole in the principal mountain. The lustre of its strata, which are alternately of the thickness of half an inch and less, to that of a foot, but seldom more, on the rifts, gives this fossil extraordinary beauty, and when the bare parts of the mountain are illumined by the sun they dazzle the eye, like the castles of steel or crystal in the poem of Ariosto. Large veins of a white or bluish white quartz, of a glassy fracture and lustre, traverse the rock in various directions. Considerable masses of it are also found scattered on the surface. In many places, there appears, over the mica layers of greenish or yellowish grey colour, that particular modification of mica-slate, which Mr. Von Eschwege * has called iron mica-slate. It forms layers of different thickness upon it. Brown iron-stone also lies here and there, especially in loose pieces, scattered on the surface. According to the analogy of its appearance on the mountain of Villa Rica, its layers seem to be the uppermost strata in this formation; in and upon them we observed magnetic iron-stone crystals; and these are octahedrons from the size of a pea to that of half an inch.

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* Journal of Brazil, Part II. Geognost. Gemälde Von Brasilien, Weim. 1822, 8vo. p. 21.

The farm in which we passed the night is situated on the highest part of this mountainous country, which, on account of its flat ridge, is called Chapada. By this word they distinguish, in Brazil, and particularly in the more southern provinces, every elevated plain or plateau. Though they are seldom of considerable extent, yet they so strikingly differ from the narrower mountain ridges, which generally terminate in sharper summits, or groups of rocks, that the term has become universal in the mouths of the people. In the Lingua Geral, these elevated plains are called Ita-beba, *i. e.* flat mountains. A great part of the Termo of Minas Novas, and the province of Goyaz, consists of such chapadas, which are there characterised also by a peculiar vegetation.

A few weeks before our arrival at the Fazenda da Chapada, the owner had entertained Mr. Von Eschwege, on his return from Rio de Janeiro to his residence at Villa Rica, and was very friendly and good-humoured, when he learned that we were his countrymen. During the night we passed in a closed room, we experienced a very great difference in the temperature; Reaumur's thermometer fell to 11°, though during the day, and in the shade, it had risen to 20° and 21°. This proportion of the temperature prevails almost universally in the higher parts of Minas Geraës, and particularly during the dry months. Between Chapada and the Fazenda Jozé Correa, which is only three leagues from it to the N.N.E., where we passed the night, the formation of the mountain is exactly the same as we had observed the day before. Beyond the picturesquely situated farms, Rodeio, rises the Serra de Oiro Branco, higher and steeper than Da Solidade, taking the direction of E.S.E. to W.N.W. Its nucleus also consists of white quartzy mica-slate, upon which thick layers of variegated mica, divisible into large plates, are incumbent. In the valley formed by this mountain, which is watered by several crystal streams, the iron formation is very evident in many places. Large masses, similar in their direction and stratification, consist of a bed of red brown iron-stone, and even of a rich iron mica-slate; the octahedrons of magnetic iron-stone lie in great abundance detached along the road. The iron mica-slate is observed, especially in the neighbourhood of a greenish grey mica, and is easily decomposed. As the layers of the latter are subordinate to the granular quartzy mica-slate, and alternate with the iron mica-slate, it is not uncommon to find pieces in which these three rocks appear together.

The road over these beautiful mountains continues to ascend, and unfolds to the eyes of the traveller, at every step, new and interesting objects. Manifold views of the valleys, in which the scattered farms become more numerous the nearer you approach Villa Rica, alternate with each other; but we were particularly surprised, as we were ascending the steep Morro de Gravier, a continuation of Serra do Oiro Branco, at seeing some arborescent lilies, the thick naked stems of which, divided in the manner of a fork in a few branches ending in a tuft of long leaves, and being frequently scorched on the surface by burning of the meadows, are some of the most singular forms in the vegetable kingdom. The two species which have these forms, barbacenia and vellosia *, are called in the country, Canella d'Ema, and, on account of the resin they contain, are much used for fuel, wood being very scarce. They appear to thrive only on quartzy mica-slate, and are considered by the inhabitants as a characteristic mark of the abundance of a country in gold and diamonds. They are most frequently met with here at an elevation of from 2000 to 4000 feet, always accompanied by a variety of the prettiest shrubby rhexias, eriocaulon, and xyris.

How different are the feelings of the traveller when he passes from the dark low forests into the free and open tracts! On these serene and tranquil heights the noisy inhabitants of the wood are mute: we no longer hear the howling of herds of monkeys, the incessant screams of innumerable parrots, orioles, and toucans, the far-sounding ham-

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* See Martius, Nov. Genera Plant. Bras. 4to. vol. i. p. 14.

mering of the wood-peckers, the metallic notes of the uraponga, the full tones of manakins, the cry of the hoccos, jacus, &c. The more numerous are the humming-birds[*], buzzing like bees round the flowering shrubs; gay butterflies fluttering over the rippling streams; numerous wasps flying in and out of their long nests hanging suspended to the trees; and large hornets (*morimbondos*) hovering over the ground, which is undermined to a great extent with their cells. The red-capped and hooded fly-catcher[†], the *barbudos*[‡] (the barbets)[§], little sparrow-hawks[||], the rusty red or spotted *càboré* (Brazilian owl)[¶], bask on the shrubs during the heat of noon, and watch, concealed among the branches, for the small birds and insects which fly by; the tinamus walks slowly among the pine-apple plants, the *enapupés* and *nambús* in the grass[**]; single toucans[††] seeking berries, hop among the branches; the purple tanagers[‡‡] follow each other in amorous pursuit from tree to tree; the *caracará*[§§] and the *caracarí* flying about the roads quite tame, to settle upon the backs of the mules or oxen; small wood-peckers * silently creep up the trees and look in the bark for insects; the rusty thrush, called *João de Barros* †, fearlessly fixes its oven-shaped nest quite low between the branches; the siskin-like creeper ‡ slips imperceptibly from its nest, (which, like that of the pigeons, is built of twigs, and hangs down from the branches to the length of several feet,) to add a new division to it for this year; the *Câoha* §, sitting still on the tops of the trees, looks down after the serpents basking on the roads, which, even though poisonous, constitute its food, and sometimes, when it sees people approaching, it sets up a cry of distress, resembling a human voice. It is very rarely that the tranquillity of the place is interrupted, when garrulous orioles ‖ (*Papa arroz*), little parrots and parroquets (*Maracanás, Maritâcas, Jandaiás*), coming in flocks from the maize and cotton plantations in the neighbouring wood, alight upon the single trees on the campos, and with terrible cries appear still to contend for the booty; or bands of restless hooded cuckoos ¶, crowded together upon the branches, defend, with a noisy croaking, their common nest, which is full of green-speckled eggs. Alarmed by this noise, or by passing travellers, numerous families of little pigeons (*Rolas*) [*], often no bigger than a sparrow, fly from bush to bush; the larger pigeons (*Amarzoga* and *Troquase*) [†], seeking singly among the bushes for food, hasten alarmed to the summits of the neighbouring wood, where their brilliant plumage shines in the sun; numerous flocks of little monkeys [‡] run whistling and hissing to the recesses of the forest; the cavies [§], running about on the tops of the mountains, hastily secrete themselves under loose stones; the American ostriches (*Emas*) [||], which herd in families, gallop at the slightest noise, like horses through the bushes, and over hills and valleys, accompanied by their young; the dicholopus (*Siriemas*) [¶] which pursues serpents, flies, sometimes sinking into the grass, sometimes rising into the trees, or rapidly climbing the summits of the hills, where it sends forth its loud deceitful cry, resembling that of the bustard; the terrified armadillo (*Tatú Canastra, Peba, Bola*) [**] runs fearfully about to look for a hiding place, or, when the danger presses, sinks into its armour; the ant-eater (*Tamanduá, Bandeira,*

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[*] Trochilus superciliosus, albus, maculatus, Mangœus, mellivorus, viridis, forficatus.

[†] Muscicapa coronata, Eremita nob.

[‡] The Portuguese names in the text are printed in Italics.

[§] Bucco Tamatia L., fuscus Lath., Barbican Tem.

[||] Falco Sparverius, aurantius.

[¶] Strix ferruginea, palustris.

[**] Tinamus brasiliensis, variegatus, &c.

[††] Ramphastos dicolorus.

[‡‡] Tanagra Jacapa.

[§§] Falco brasiliensis, Polyborus vulgaris Veill.

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* Picus campestris nob., flavifrons Veill.

† Turdus Figulus, nob.

‡ Anabates rufifrons, Neuw.

§ Falco cachinans, Cuv.

‖ Oriolus minor, L.

¶ Cuculus Guira.

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[*] Columba passerina, minuta Lath., squamosa Tem.

[†] C. frontalis Tem., leucoptera, &c.

[‡] Jacchus penicillatus. (Spix, Sim. Bras. tab. xxvi.)

[§] Cavia rupestris.

[||] Rhea americana.

[¶] Dicholopus cristatus, Hoff.

[**] Dasypus giganteus, septemcinctus, tricinctus.

*mirim*)[*] runs heavily through the plain, and, in case of need, lying on its back, threatens its pursuers with its sharp claws. Far from all noise, the slender deer[†], the black tapir or a pecari[‡], feed on the skirts of the forest. Elevated above all this, the red-headed vulture (*Urubú*)[§] soars in the higher regions; the dangerous rattle-snake (*Cascaoel*)[||], hidden in the grasses, excites terror by its rattle; the gigantic snake[¶] sports suspended from the tree with its head upon the ground; and the crocodile[**], resembling the trunk of a tree, basks in the sun on the banks of the pools. After all this has passed during the day before the eyes of the traveller, the approach of night, with the chirping of the grasshoppers, the monotonous cry of the goat-sucker (*Joâo corta pâo*)[††], the barking of the prowling wolf[‡‡], and of the shy fox[§§], or the roaring of the ounces[||||], complete the singular picture of the animal kingdom in these peaceful plains.

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[*] Myrmecophaga jubata, tetradactyla, tridactyla.

[†] Cervus campestris, longicaudatus (Catingheiro), tenuicornis (Galheiro) nob.

[‡] Tapir major, minor (Sapateira, Xurés); Dicotyles Tajassu L., labiatus Cuv., brevipes nob.

[§] Cathartes ruficollis. (Query, the Turkey buzzard, Catesby?)

[||] Crotalus cascavella. (Spix, Serp. Bras. tab. xxiv.)

[¶] Boa constrictor.

[**] Jacaretinga moschatus; Crocodilus fissipes nob. (Spix, Lacertæ Bras., tab. i. and ii.)

[††] Caprimulgus albicollis, cayennensis.

[‡‡] Lupus mexicanus, Cuv.

[§§] Vulpes campestris, nob.

[||||] Felis brasiliensis, Onça, concolor.

From the Morro de Gravier the descent is but inconsiderable to reach the beautiful Fazenda Capâo, and a quarter of a league farther to the farm of Lana. This is the district in which the well-known Brazilian topazes are found. The basis of the rock is flexible quartz; yet it is seldom in its usual form, but more frequently in the variety called by Eschwege, iron mica-slate. Incumbent on it are immense layers of a modified mica, which might be denominated earthy talc. They form low rounded hills, in which those precious stones are found in three different places, but chiefly near the two abovementioned farms. Immediately behind the Fazenda Lana there is a hill which, on one side, for a considerable breadth and to a height of sixty feet, is so softened by rains, and by water conducted upon it by art, that it is like a marsh, and without changing its position in parts, sinks lower all together. We found the owner and his slaves just then busy in looking for topazes. The soil is thrown up into long heaps with shovels, and washed by means of water conducted over it into a narrow channel, with some wooden lattices fixed in it, so that only the more solid parts remain behind, which are then broken with hoes and with the hands in search of topazes. These harder parts of the decomposed formation are the fragments of white quartz, often quite friable, sometimes mingled with detached rock-crystals, and are often accompanied with a white or brown ferruginous porcelain earth.

The latter, which is here called Massa branca, is the surest indication of the presence of topazes, which lie loose and scattered in it as well as (though more rarely) among the broken and decomposed quartz. The workmen give the name of Malacacheta to the fine softened mica of a yellow and pinchbeck-brown earth, which one is tempted to call earthy talc. Topazes are found in it, but less frequently than in the broken remains of veins; and they have been observed, not only in the softened parts of the formation, but, as for instance at Capâo, also in that which is still solid. The vein of quartz, filled with porcelain earth, and containing the topazes, commonly runs between rifts of earthy talc, which is distinguished by its colour and compactness from that lying near it, and is called Formaçâo. The quartz vein, which, on account of the mobility of the whole mass, does not always preserve the same direction, but at the time of our visit ran from north to south, is from one inch to a foot and a half or more in thickness, and is carefully followed by the workmen. It frequently widens into large nest-like expansions, which present nothing but sterile broken quartz without topazes. The latter are also found, but very seldom, combined with the quartz rock or rock-crystal, in general broken at one extremity; we were never able to find, even in the mine, any with crystals terminated by planes at both extremities. The topaz miners have a custom very unfavourable to the crystallographer, which is to endeavour to prepare each stone for cutting by knocking off the impure particles with the hammer or entirely dividing pieces which have flaws.

The size of the stones is very various; the workmen affirmed that pieces have been found as large as a fist. The natural colour is manifold, sometimes greyish, sometimes bright yellow, and sometimes a mean between this and carnation of different shades, very rarely dark red. The stones which are found in the malacacheta are said to be the lightest. The inhabitants understand how to give to the topazes an artificial, particularly rose colour, by means of heat. The number of topazes annually found here is very considerable, and may amount to about fifty or sixty arrobas; this quantity, however, is not always pure and fit for polishing; on the contrary, a great part of them are of so imperperfect a colour and full of flaws, that they are thrown away as useless. The octavo (a gold weight) of the inferior sort of the stones fit for cutting, is sold at 320 rees; of the best, at 2000 rees. Remarkably large beautiful and brilliant stones are sold upon the spot from twenty to thirty piasters. The greater part of these topazes is exported from this place to Rio de Janeiro, a smaller portion to Bahia, and in both places so great a quantity has been accumulated within a few years, that the prices there are lower than at the mine itself. Together with the topaz, the euklase is also found here, and has attracted the attention of the Mineiros since mineralogists have enquired after it. This stone in general is scarce, and is more frequent in the mine of Capâo than in that of Lana.

Leaving Lana, we proceeded through narrow ravines, past rugged declivities, and steep mountain walls, and came to a place where the view, which had hitherto been confined, suddenly expanded, and showed a labyrinth of mountains and valleys running into each other. The Itacolumi, covered at its base with dark forests, and with its bare rocky summit, towering above all its neighbours, commands the whole country. A singular variety of light and shade, from the most brilliant sunshine to the deepest gloom, was spread over the landscape, the sombre and sublime character of which would afford a subject worthy of the pencil of a Salvator Rosa, or a Gaspar Poussin. Nature, by her profound silence, seemed to harmonise with the frame of mind into which we were thrown by the contemplation of this grand scene. The mountains grew steeper as we ascended, and we at last reached Trepui, a much-frequented venda, a mile from Villa Rica, where the caravans coming from or going to that place are generally re-organised. Here we, too, halted, partly to prepare ourselves for our entry into the villa, and partly to examine the rivulet flowing from the next hill into the valley below, and which contains cinnabar. We, in fact, found several small rounded grains of cinnabar mingled with many fragments, and even octahedral crystals of titaniferous iron. After everything had been arranged, we ascended the last promontories of Itacolumi, from which we enjoyed the inexpressible pleasure of seeing close before us part of the long-wished-for town of Villa Rica. Mr. Von Eschwege, who resides here as colonel of the engineers, and director of the gold works, had previously had the kindness to hire apartments in the inn, As Cabaças, at the entrance of the town, where we could immediately dispose of our baggage. Full of joy, we rode down the mountain, and, on the 28th of February, being just one month after our departure from Ypanema, arrived safe in the capital of the mining country.

## NOTE TO CHAPTER III.

In the friable matrix of the yellow topazes, which has a greasy feel, we found, on accurate examination, the following fossils:—

1. Small-scaly lithomarge, yellowish and pinchbeck-brown, in places pearl-grey and silver-white; in the longitudinal fracture shining a little, and like mother-of-pearl; in the transverse fracture, faintly glimmering; very fine and greasy to the touch; slightly adhering together in roundish

pieces; soiling; adhering but little to the tongue; not remarkably heavy, but almost light. This scaly lithomarge, which, on account of its very greasy feel, we might be induced to call "earthy talc" (which, however, cannot be recognised by us till the presence of magnesia in it is proved), is certainly nothing more than a modification of mica, which, in its usual state, appears hard and foliated, but here very soft and scaly. Small pieces of crystallised quartz, rock-crystals, and topazes are found embedded in it.

2. This soft mass further consists of little round pieces of a snow-white friable lithomarge, which is faintly glimmering between fine scaly and pulverulent soils, adheres to the tongue, is fine and greasy to the touch, and light. In it there is ironglance, crystallised in small six-sided tables, and topazes in still greater proportion.

3. This lithomarge in the form of small blunt-edged pieces often adopts a yellowish, then a light, and, at last, a very dark brown colour, being entirely impregnated with iron-ochre. There are in it still more little six-sided tables of ironglance than in the white lithomarge.

It is remarkable that the topaz, the euklase, and the quartz crystals in this formation are always found detached, and very often in fragments; but it would be a great mistake to infer from this, that the abovementioned fossils are in a secondary repository. If we compare the occurrence of the softened mass of mica (or lithomarge) at Capâo and Lana, with the more solid, though still pretty soft, varieties of mica, at Jozé Correa and Chapada, to the south of the former places, and of the Morro, near Villa Rica, we must be convinced, that both are quite similar in their origin and age, and have only undergone a modification with respect to their greater or less solidity. As we believe that every considerable repository of porcelain earth, on and in gneiss and granite, is an original formation, so we are convinced that this repository of mica (if we may use this expression) must be considered as such a one, and, consequently, not essentially differing from the usual formation of the mica-slate.

Notwithstanding all that has been said, for some years past, respecting the occurrence of topazes in Brazil, there always has remained, on nearer examination, great uncertainty and doubt. Mr. Von Eschwege, in Baron Von Moll's Annals, vol. iii. No. 3., says — "Chlorite-slates are generally the lower ranges of the higher sandstone mountains, and in them they dig for topazes in the country round Villa Rica; topazes are found in them only irregularly, here and there in nests and kidneys of lithomarge, fine white sand, rock-crystal, all which lie loose and promiscuously aggregated, partly crystallised, partly in irregular sharp-edged pieces; sometimes the topazes are imbedded in rock-crystal ...... The manner in which the topazes are obtained is with broad hoes, as the chlorite-slate is quite decomposed and forms fullers'-earth, &c." In the Journal of Brazil, the same gentleman remarks: — "The Morro Deos te Livre consists of sand-stone and chlorite-slate. ..... From this place to Capâo de Cane, the principal species of rock is clay-slate, here and there forming a passage into chlorite-slate. This latter forms smaller mountains, often much decomposed and ferruginous, passes into fullers'-earth, and is then the matrix of the yellow topazes, which are frequently found in it in nests, with lithomarge. The chief mine is at Capâo. All the topazes found there have the peculiarity that they are broken; not a single crystal is found growing to another rock; even the rock-crystal, which occurs with them, is also broken; sometimes it is seen growing together with a topaz. The topazes, as well as the rock-crystal, show, in the fracture, a great freshness, as if they were but just broken, and lie in nests confusedly mixed together, surrounded with lithomarge. It is extremely difficult to form a hypothesis in what manner they came into the regularly stratified chlorite-slate. In order to make a still greater confusion of ideas, we have only to put the questions—Where was the matrix from which they were separated? What power could that be which so broke to pieces the matrix and themselves, that not one stone remained connected with another, but each appears wholly insulated? If they were rent from another place and here brought together again, how comes it that lithomarge, as it were, prepared a bed for them in which they were deposited, as in their original situation?" In Gilbert's Annalen der Physik, vol. i. p. 4., M.Von Eschwege again says, that in the chlorite-slate, topazes are enveloped in lithomarge; nay, in his latest geognostic description of Brazil, where he himself says, that he has formerly written various things on these subjects with which he is not now quite satisfied, he still observes:—"That talc and chlorite-slate appear inseparable; where the rock is entirely decomposed into fullers'-earth they find, in nests or groups, enveloped in lithomarge, the beautiful yellow topazes, and also the rare euklase; and often, in large fine six-sided tables of crystallised ironglance, with crystallised talc, rock-crystals with topazes immersed in them, or topaz-crystals with rock-crystals immersed, also cyanite, &c."

John Mawe, in his Travels in Brazil, has described the occurrence of topazes very differently, and, in our opinion, more correctly. According to his observations, the topazes are found at Capâo in narrow veins in a clay-slate passing into mica-slate. He thought that they were no longer in their original repository; that the crystal had but one acumination, and consisted of fragments; some were, indeed, grown together with quartz, but even the quartz itself appeared but in fragments. The topazes were enveloped in friable earthy talc and large crystals of ironglance, &c.

If our observations on the occurrence of the topazes are compared with the preceding remarks, it appears that they are found neither in chlorite-slate nor in a fuller's-earth, produced by the decomposition of this chlorite-slate, or fine white sand, but in a greasy mica, modified into lithomarge, which may be called scaly lithomarge, and in friable lithomarge, partly pure and partly mixed with much red ochre, which is accompanied with quartz and porcelain earth. Mawe has comprehended both the varieties, under the name of soft earthy talc, for which they certainly may be taken.

Mr. Von Eschwege himself has adduced the most solid reasons against the assertion of a secondary repository. On such a supposition we must assume a flötz chlorite-slate, and even regularly stratified; besides, we do not find the matrix from which the topazes may have been detached; neither is it to be conceived how, under such circumstances, they could be enveloped in the lithomarge, as in an original repository. We may add, that this is the more difficult to be explained, when we consider that both on the topazes and euklase evident impressions of very fine scales of lithomarge are to be seen, which may seem sufficiently to prove the simultaneous formation.

Lastly, if we must absolutely explain the origin of so many fragments of topazes, euklase, and quartz, the hypothesis of Mr. Zinken appears to be the most probable, according to which, these minerals have been formed in their original repository, but that a subsequent inundation penetrating into the friable mass of mica, loosened it, and hereupon the little cavities which arose at the formation of the separate crystals, collapsed, and fractured the crystals of topaz and euklase, which always have innumerable rents and fissures. Besides the occurrence of the topazes in the scaly and crumbly lithomarge, which evidently owes its origin to mica, has a great analogy with the origin of the emerald in mica, or mica-slate, in the valley of Heubach, in the principality of Saltzburgh.

Mr. Frischholtz says, in Baron Von Moll's new Annals, vol. iv. No. 3., " That mica, separates from the gneiss, and forms veins several feet thick. Emeralds are seldom found in gneiss, but always in mica: when this latter is soft, and almost unctuous to the touch, the emeralds contained in it are larger, of a more beautiful green, perfectly formed, and the lateral planes clear of the matrix. They are never found massive, but the crystals disseminated, and confusedly aggregated in the mica, very rarely embedded in quartz; in the latter case they are greenish white, or even white, as the quartz itself."

These emerald crystals too are full of impressions of the surrounding mica, like the topaz and the euklase; so that the original repository of the latter appears to be the less liable to any farther doubt.

If, in addition to this origin of the emerald, we farther consider that the pycnite, which is the nearest allied to the topaz in its component parts, likewise occurs in mica; if we attend to the occurrence of the topazes in the topaz rock and lithomarge at Auerbach, in Saxony, we shall find their repository and that of the euklase in Brazil, which is akin to the emerald, little or not at all varying from that known in Germany, and thus have another proof that in this respect also the inorganic new world is conformable to the old. Even the modified mica, the scaly lithomarge, or Mr. Mawe's earthy talc, is met with in Bavaria, namely, in the country from Waltershoff to Pullenreuth, for an extent of two leagues, so nearly resembling that from the district of Capâo, that it is often very difficult to distinguish them. Only the mode of occurring is different; while, if the latter is to be regarded as a considerable bed, the former, according to Mr. Von Flurl's Description of Mountains, p. 424. sometimes forms a flötz stratum of great extent, and three fathoms thick, in which lies a compact and fibrous brown iron-stone, and in conjunction with this even a kind of talc-like, or micaceous iron-stone, which is rather allied to mica. Several flötz deposits of this modified mica, or earthy talc, are described by Dr. Reuss, in his Orographie des

Böhmischen Mittelgebirges, p. 122. and 146., in which the red garnets are found embedded.

We have already mentioned the principal colours of the topazes found in Brazil. Those in our possession, which are for the most part crystallised, are, 1st. four-sided prisms, with cylindrical, convex, lateral planes; and, 2dly. eight-sided prisms, in which the lateral planes, meeting in a very obtuse angle, may be clearly observed. In the first case the prisms are acuminated by four planes, set on the lateral planes; in the latter, the solid angles of the nearly rectangular lateral edges are more or less truncated, so that the acumination appears of six planes. The lateral planes of the crystals are longitudinally striated, though, in some of them this striation is hardly perceptible. The terminating planes are rough, but some of them are so evidently notched on the acuminating edges, which may be considered as a continuation of the nearly rectangular lateral edges, that it is impossible not to perceive the origin of the crystal out of many small ones, each of which had a tendency to form its own distinct acumination. In this aggregation of several small crystals into one, we must probably seek the cause of the striated lateral planes, and the rough terminating planes. The remaining marks are common to them all, only in some dark yellow pieces, small scales of ironglance, perhaps little six-sided tables, are embedded, and seem thereby to allow the inference that the topazes have a deeper colour in proportion as the surrounding lithomarge is more ferruginous.

The euklase, which, in common with the emerald, occurs in the modified mica, or scaly lithomarge (which contains no magnesia, like chlorite and talc), is in the specimens of a light mountain-green colour. The rarity of a complete crystal will long be a hindrance to an accurate description of it. The best defined crystal before us is a four-sided oblique prism (according to the measurement of Mr. Fuchs, in Landshut,) of 115° and 65°, broken at one end, and bevilled at the other, by planes obliquely set on the acute lateral edges, so that the edges of bevilment form with the obtuse lateral edge an angle of 133°, and the bevilled planes meet under one of 106°. At the upper corner of the bevilment, there are four other small planes, which make a kind of acumination; two of these planes are smooth, the two others clearly notched, and show, as in the topazes, that the crystal is composed of several small ones. The lateral planes are longitudinally striated, and curved towards the obtuse lateral edge, so that the crystal has a reed-shaped appearance. The striation of the lateral planes most probably arose from the accumulation of the abovementioned smaller crystals, which formed several little planes, that are divided by furrows, whence the angles of the lateral edges can only be measured at the sharp edge.

In the pieces of euklase in our possession, we observed only one cleavage, namely, in the direction of the short diagonal of the terminal planes, or across the acute lateral edges, and which is in the highest degree perfect. The transverse fracture appears conchoidal. Some lateral and terminal planes of the crystals are rough, with numerous small impressions caused by the scales of the lithomarge, as in the emerald and topaz, and thus leave no room to doubt that this latter is their matrix.

We have observed above, that with the topazes and euklases, there occur also quartz and rock-crystals of different sizes; we will here particularise only two of the former and two of the latter, which are deposited in the Brazilian museum at Munich.

A piece of greyish white transparent quartz, has no regular shape, but the whole surface is full of impressions, which are frequently deep, occasioned by topaz crystals. Two fragments of the latter, of a light and dark yellow colour, still grow together with it.

The second piece of quartz is a six-sided prism, acuminated at both ends with six planes, crystallised, large, pellucid, semitransparent, and with many impressions, some of them very deep, one of which, measured diagonally, is nearly an inch broad; it may be asserted with the more confidence that they proceed from topaz crystals, as small fragments of such are still adhering to some of them. The surface of this quartz crystal is rough, probably from the impressions of the scaly lithomarge. Four crystals of rutile, of middling size, are grown together with it.

One rock-crystal is greyish white, at one end acuminated with six planes, at the other, having many impressions, which have been the more certainly caused by silvery mother of pearl colour mica scales, as such are grown together with it, not superficially only, but in the mass stellarly aggregated. The other remarkable piece of rock-crystal is a large fragment, with two opposite broad lateral planes. The surface is partly smooth, partly with many impressions, the origin of which is shown by some small tables of ironglance growing together with it. On this crystal, three small topazes grow superficially, and several small ironglance crystals in the interior.

For the above remarks on the topaz formation, as well as for the subsequent ones, on the several formations about Villa Rica, we are obliged to Chevalier V. Wagner, director of mines, who has had the goodness to determine all the minerals collected by us in Brazil, and to communicate to us the geognostical decisions resulting from the examination of them, and comparisons with the mode of occurring in Germany.

# TRAVELS IN BRAZIL.

## BOOK IV.

## CHAPTER I.

### STAY IN THE CITY OF VILLA RICA.

Villa Rica, the capital of the province of Minas Geraës, the residence of the governor-general and of the ouvidor of the Comarca Oiro Preto, is built on two hills of the eastern declivity of the mountain of the same name, on the Oiro Preto, subsequently called Do Carmo, which is the boundary between the lofty Itacolumi and the Morro de Villa Rica. The streets leading from that part of the city situated in the valley Do Oiro Preto, to that lying upon the hills, are all paved, provided with fourteen wells, and connected by four stone bridges; among which, the new one in the valley, erected by Mr. Von Eschwege, is the handsomest; the principal street runs half a league along the slope of the Morro. The houses are built of stone, two stories high, covered with tiles, the greater part are white-washed, and, though not very striking in their external appearance, are convenient, and adapted to the elevated situation of the town. The most remarkable of the public buildings are ten chapels, two considerable parish churches, the exchequer, the theatre, where plays are acted by an itinerant company, the Latin school, the town-house, with the prison, most of the inmates of which are murderers, whose crimes have originated in robbery or intrigue; but above all, the castle, the residence of the governor, which is defended by some cannon, and situated on the highest projection of the hill, commands part of the city and the market-place, and enjoys a fine prospect over the whole country.

This place, though hidden in a narrow defile and surrounded by mountains and unfruitful stony campos, was always a favourite spot, to which not only Paulistas, but even Portuguese, frequently resorted in great numbers. The population of all Minas is now stated at half a million, and that of the city at 8500 souls. In the latter, the number of Portuguese from Europe, is proportionably great. The men capable of bearing arms are divided into two regiments of auxiliary cavalry (militia), fourteen companies of local militia of whites, seven of mulattoes, and four of free negroes.* Almost all kinds of trades are carried on here, the principal of which are the saddlers, tinmen, and blacksmiths; there are likewise manufactories of gunpowder, beaver hats, and pottery. No other town in the interior of Brazil has such a brisk trade as Villa Rica. There are roads from this place by way of S. Joâo d'El Rey to S. Paulo; by Minas Novas to Bahia; by S. Româo, Tejuco, Malhada, to Paracutú, Goyaz, and Matto-grosso; but none of these is so much frequented by caravans passing backwards and forwards, as that leading to Rio de Janeiro, which is seventy miles distant. Almost every week large convoys set out with the productions of the country, cotton, hides, marmalade, cheese, precious stones, gold bars, &c., and bring in exchange from the capital, salt, wine, calicoes, handkerchiefs, hams, looking-glasses, iron-ware, and new negroes to be employed in the gold-washing, &c. The trade with the more remote districts of the interior, is not, indeed, so great as that of S. Paulo and Rio, which is carried on even as far as Goyaz and Matto-grosso, yet it extends even beyond the Rio de S. Francisco, almost over the whole capitania, and supplies it not only with the European articles purchased at Rio de Janeiro, but also with the produce of the environs; for instance, iron goods, beaver hats, pottery, cheese, maize, beans, marmalade, pork, and bacon, which is used instead of butter and lard, and is a staple article in the trade of the province.

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* See Note 1. page 198.

The climate of this capitania on account of its elevated situation, is very temperate, and favourable to European fruits. During our residence in Villa Rica, the thermometer varied very much; in the morning before sunrise it was at 12° R., at noon at 23°, in the evening at 16°, and at midnight at 14°, The barometer rose and fell between 23 and 25.50; the whalebone hygrometer varied from 55° to 70°.* The weather was very pleasant, but often cooled by sudden thunderstorms. During the cold months, June and July, the plantations are sometimes injured by night frosts; thus, in the year before our arrival, a considerable part of the crop of banians, sugar-cane, and coffee was frozen. The winds blow from various directions, and are never accompanied by great heat, but frequently thick fogs, which often envelope the summits of the neighbouring mountains. The heat is accordingly less through the whole year, and the air more salutary than in the other provinces. The prevailing diseases are mostly catarrh and rheumatism; inflammations of the throat and lungs, violent cholic, and acute rheumatism are the most frequent. The negroes are observed to be particularly subject to elephantiasis and a peculiar kind of leprosy (*Mal de S. Lazaro*) of which we shall have occasion to speak in the course of our narrative.

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* Mr. Von Eschwege (V. Moll's new Annals of Mining, vol. iii. No. 3. p. 338.) observes, that Fahrenheit's thermometer in the heat of summer, never rose above 82° in the shade at noon, and in the winter, never fell below 54°. His barometer fluctuated between 26.564 and 26.090 (English). He observed at Rio de Janeiro, a magnetic inclination of 28° 44′ 30″ S., and 21 vertical oscillations in a minute; at Villa Rica, he found the inclination to be 29° 31′, the oscillations in a minute 20.8.

Agriculture is not carried on to any considerable extent in the greater part of this mountainous capitania for want of woods, and because the stony soil in the unfruitful campos is entirely exposed to the heat of the sun; but, on the other hand, the province possesses other treasures. Almost every kind of metal is found here: ironstone, which produces ninety per cent., is met with almost everywhere, and it constitutes, in a manner, the chief component part of long chains; lead is found beyond the Rio de S. Francisco in Abaité; copper in S. Domingos, near Fanado in Minas Novas; chrome and manganese in Paraöpeba; platina, near Gaspar Soares and in other rivers; quicksilver, arsenic, bismuth, antimony, and red-lead ore, about Villa Rica; diamonds, in Tejuco and Abaité; yellow, blue, and white topazes, grass and bluish green aqua-marines, red and green tourmalines, chrysoberyls, garnets, and amethysts, principally in Minas Novas. But what has chiefly contributed to the great influx of settlers, and to the rapid population of this capitania, particularly of the capital, is the great abundance of gold which has been obtained for above a century.*

The gold is found in the country about Villa Rica in the form of powder and fine dust, or in larger or smaller folia, in crystals, particularly in octahedrons and tetrahedrons, in dendritical form, lastly, though more rarely, in whole lumps. There is an instance of a massy piece which weighed sixteen pounds; in colour, it is yellow, black, or whitish, according to the different proportions of the chemical and mechanical admixture of platina, iron, and other metals. Hitherto it has been washed out of streams and rivers, from the clayey surface of the soil, or out of stamped auriferous quartz veins, or iron-stone flötz. It is related that this metal has even been found in heaps, under the roots of plants pulled out of the ground, whither it had been accidentally washed by the rains. We first of all saw here the gold-washing in the Ribeirâo de Oiro Preto, in which, as the rivers are not private property, some negroes were almost constantly employed. No free men, except blacks, follow this occupation, and they only when they happen to want money to supply their wants, and particularly brandy. The gold-washers (*faiscadores*) are dressed in a leathern jacket, with a round bowl cut out of the wood of the fig-tree (*gamelleira*), from a foot and a half to two feet in diameter, and a foot deep, (*gamella*, *panella*, *patea*,) and a leather bag fixed before them. They generally select those places in which the river is not rapid, where it makes a bend, and has deep holes. They first remove the large stones, and upper layers of sand, with their feet or their gamella, and then take up a bowl full from the deeper and older gravel of the river (*cascalho virgem*). They continue to shake, wash, and strike off the stones and sand at the top, till the heavy gold dust appears pure at the bottom of the vessel, on which a little water is thrown in with the hand, and the gold at length put into the leathern bag. This mode of gold-washing is here called *mergulhar*, diving. Every bowl of cascalho, the washing of which requires about a quarter of an hour, generally yields from one to two vintems[*], and a man may gain in this manner, several florins in a day. They sometimes wash the cascalho upon a platform (*canoa*), erected on the spot.

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* See Note 2. page 199.

Having now reached the celebrated centre of the gold country, we ardently wished soon to visit the mines themselves. Our friend, Mr. Von Eschwege, kindly met our wishes, and conducted us to the eastern declivity of the Morro de Villa Rica, which has hitherto yielded the greatest abundance. From the southern hill of the mountain (*As cabeças*), we passed through several gardens ornamented with fuchsia, near to the Hospicio de Jerusalem, and by the side of a deep trench to a naked ravine, irregularly rent, and full of masses of rock, which had fallen down, presenting a picture of wild desolation. How great was our astonishment, when our friend signified to us that this was the rich gold mine of Villa Rica. The mine in which we then were belonged to Colonel Velozo, and is one of the oldest and most productive. Sieves and raw ox hides were placed at certain distances, in trenches full of water, conducted from the summit; the first serve to stop the coarser sand, and the latter to catch the gold dust in the hair, which stands erect. Here and there we also saw detached trenches (*mondeos*), in which the auriferous mud or sand collects. As soon as the rainy season commences, these simple preparations are put in motion. The water which is led into the trenches, washes the gold out of the stones, and brings it either into the trenches, or between the hair of the hides; the gold is then washed out of the mud in those receptacles, by negro slaves, who sit there stripped to the waist on wooden benches, with their bowls; and the gold caught by the ox hides, washed in tubs made for the purpose, and beaten out. The former possessors always had their mine worked by several hundred slaves, and derived immense profit from it; at present, however, it seems to be much impoverished, so that but few gold-washers are employed in it, and the work mostly left to free negroes for a daily payment of a patacca. This manner of obtaining gold from a public mine, is called *Minerar a talha aberta.*

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[*] A Vintem is $1\frac{7}{20}$d.

After we had inspected all the operations of this mine, or rather trench, by which only the coarser part of the metal is obtained, and the rest carried to the rivers, and thus the real formation of the gold injudiciously covered or destroyed, we proceeded to examine the geognostic particulars of the Morro de Villa Rica. This mountain runs in the direction from W. to E. along the valley of the Ribeirâo do Oiro Preto, to the village of Passagem, an extent of nearly two leagues, and seems, as the formation on both banks in the bottom of the valley proves, to have been formerly connected with the lofty Itacolumi, but to have been subsequently separated from it by the power of the waters; it is covered here and there with low wood, and to the very summits with grass and bushes; its ridge is pretty even, and the mountain on the side towards the city less steep. The superstructure*, an iron-stone flötz, which is called in this country *Tapanho-acanga*† (or simply *Canga*), is pretty uniformly diffused over a great part of the surface of the Morro de Villa Rica, covers the older formations to the depth of from three to twenty feet, and being so easily worked, has peculiarly undergone considerable changes, through the operations of the Mineiros. The flötz formation consists of a clay, coloured red, more or less, by oxyde of iron, but principally of lithomarge. The colour of the latter is brick and carnation, inclining to reddish brown, in many places spotted with lavender-blue, and ochre-yellow, and seems to be mixed with much yellow earth. In this mass there is a great quantity of blunt-cornered pieces of compact* brown iron-stone, some small, others large, even to the size of a foot and more. The brown iron-stone contains many small drused cavities, filled with brownish red iron-ochre; it is often grown together with greyish white quartz, which on the surface is frequently reddish grey. There are also seen in this flötz formation truncated pieces of common ironglance of compact fracture, passing into imperfectly conchoidal pieces of magnetic iron-stone, mica-slate, detached nodules of quartz, rarely fragments of topazes, one of which is preserved in the collection in Munich. The gold is the most abundant in this formation, and either in very small grains and crystals nidulating in the layers of clay and lithomarge, or as a coating on brown iron-stone, or embedded in it in folia. This formation is prevalent, not only here and in general in Minas Geraës, where they pretend that diamonds have been found in it*, but also occurs in several parts of the capitanias of S. Paulo, Goyaz, and Bahia, where it is everywhere supposed to contain gold.

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* See Note 3. page 200.

† *Tapanho-acanga* signifies (not in one of the African languages, but in the Lingua Geral,) a negro's head, from the resemblance of which to the stone, which is often encrusted on the surface as hæmatite, the name is derived.

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* Though the whole flötz stratum is penetrated with an iron-ochre, almost deep red, we met with no iron-stone, but of a brown streak.

Below this iron-stone flötz lies, in most mines of the Morro de Villa Rica, that modification of the mica-slate which † Mr. Von Eschwege calls iron mica-slate. It is a mica-slate in which the mica is replaced next to the abovementioned layer of iron-stone, by brown iron-stone, but otherwise entirely by specular iron-ore. This kind of rock is found here, as in many places in Minas, in great varieties of colour, compactness, and gravity. It is most frequently steel-grey in old fractural surface, sometimes yellowish brown or brick-coloured, according to the degree of oxydation of the metal. Here and there, when it has a considerable quantity of white quartz, it appears grainy and striped. These thin strata alternate sometimes with others of decomposed and crumbly quartz. The stone often contains so much iron, that it may be smelted to advantage. * A considerable quantity of gold is disseminated throughout this mica-slate, and in particular abundance in the quartz veins which traverse it. At the base of the mountain, and about four to five hundred feet up it, there are, in several places, layers of mica (Von Eschwege's talc and chlorite-slate), in large tables, sometimes of an even, sometimes of a conchoidal fracture, which are perfectly similar to those that occur at Capâo and Lana. No gold has been observed in them. This kind of mica-slate is not everywhere uniformly incumbent on the Morro, and in many places it is entirely wanting, and then that kind of mica-slate immediately appears, which constitutes the greater part of the mountain, namely, the quartzy, granular mica-slate, or what is called elastic quartz, which we are inclined to designate by the name of quartz-slate. † The texture of this kind of rock is most evidently slaty on the whole Morro, and where the upper layers of the

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* The piece of an iron-stone breccia, in which diamonds are imbedded, and which Link (Travels in Portugal, 1801, vol. i. page 248.) saw in the collection of the Marquis d'Angeja, and which is now in the possession of Mr. Heuland, in London, as well as some similar pieces found in the Sertâo des Rio de S. Francisco, mentioned by V. Eschwege (Geognostisches Gemälde von Brasilien, p. 43.), belong to this formation.

† See Note 4. page 201.

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* This is the case, for instance, in the iron-foundry of Antonio Pereira on the Serra de Carassa, and near Gaspar Soares. There are, besides, in many places in Minas large strata of a mica-slate, which, by the iron-coloured mica which it contains, and by a similar structure, greatly resembles the mica-slate containing specular iron-ore.

† See Note 5. page 202.

mould and iron-stone flötz are wanting, there appear, as of the mica-slate containing ironglance, large smooth planes (*Lages*), for example, above the city near the palace. The strata are often only one or a few lines or inches thick, and have some elasticity, for which reason it has obtained the name of elastic quartz. Sometimes there is a transition of this form of mica-slate into that incumbent on it, containing specular iron-ore. The gold peculiar to this rock is found in veins (*filoês*) or nests (*panellas*) of white quartz, and sometimes in incredible quantity. Hence on the road from Villa Rica to Passagem, we see many cavities hewn in the rock, which show the construction of these exposed veins and nests, from which thousands of crusadoes have been extracted. This very massive formation of the quartzy mica-slate, is incumbent on clay-slate, which, according to its appearance, where it stands out in the lowest parts of the valley of Oiro Preto, seems to form the basis of the Morro, and to rest on gneiss, which is found basking out at Caxoeira, two leagues from Villa Rica. The kind of rocks here described, are not uniformly spread over the Morro de Villa Rica, but have different thicknesses, their general direction is in hour 3 of the miner's compass, and their inclination in an angle from 50° to 70° to the east.

After we had examined the geognostical nature of the surface of the mountain, Mr. Von Eschwege led us into an adit which had been commenced some years before, and lately prosecuted by him, where we became acquainted with a formation of gold which we had not previously seen, namely, the carvoeira. * This is a friable, rough-feeling, greasy mass of greyish green colour, which consists of a very fine-grained quartz, and a smoky grey mica, with earthy grey manganese ore, and probably forms a layer several feet thick, between the planes of separation of the quartzy mica-slate, and the clay-slate lying under it. It generally contains a considerable quantity of gold, and had therefore been washed with particular care by the Mineiros, who had dug the adit into the morro. Yet they had left so much metal in the earth which they had washed, that Mr. Von Eschwege found it worth his while to wash it again with that which he dug up afresh. For this purpose, he had constructed a vessel moved horizontally by a water wheel, in which the gold was to be separated from the finest particles mixed with it, but he subsequently found this machine not quite answerable to his expectation, from the difficulty of separating the gold dust from the specular iron-ore (*esmeril*), brown stone, antimony, and arsenic. A perfect separation can probably never be obtained without amalgamation; but this method is at present almost wholly unknown in Brazil, where the general deficiency in the proper management of the metal, fully corresponds with the defective manner of working the mines. The Mineiro fancies he has done enough if he opens a mountain with an open mine (*talha aberta*), or digs shallow trenches in the course of the auriferous quartz veins and nests (*trabalhar por minas*), and leaves what remains to be done to the ore he has procured, partly to the force of the water, and partly to the skill of the negro, who generally works with the hammer instead of the stamping mill, and with the bowl instead of platform and troughs, or amalgamation. We saw stamping mills and platforms nowhere but in the mine belonging to Padre Freitas, at Congonhas de Sabara.

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* See Note 6. page 204.

According to a very rigorous law, all the gold obtained in this manner must be brought to the royal smelting house, there to be melted. In former times, gold dust was current instead of money, but this is now prohibited, and only certain owners of vendas (*vendeiros*) in the city, where brandy is sold, are permitted to accept small quantities of it in lieu of coin, chiefly from negroes in payment for brandy, and which they must immediately deliver to the smelting house.

In order to make ourselves acquainted with the mode of smelting the gold, we took advantage of the permission granted by the governor; and visited the laboratory of subterraneous wealth which is in the ground story of the palace, and in which eighteen persons are employed, of whom the escrivâo contador receives the highest salary, namely, 3000 crusadoes. All the gold dust brought from the Comarca do Oiro Preto, comes first into the weighing room, where the escrivâo da receita weighs it, and separates the fifth part from it as due to the king, and the escrivâo da conferencia enters in the lists, the quantity of each owner without and with the deduction. The parts belonging to the king are thrown together, mixed, and melted into large bars, but the four parts belonging to private individuals into single smaller bars. For this purpose, the gold dust is put into a crucible of proportionate size, and as soon as it begins to melt, it is kept there for some time with sublimate of mercury. When it appears to be perfectly melted, the metal is poured into a square iron mould, furnished with handles, in which it cools. These moulds are of very different sizes, containing from ten octaves to an arroba of gold. The various combinations of the gold to be melted, with iron antimony, manganese, or arsenic, determines the time necessary to melt it. Gold which is more difficult to melt is mixed with a greater proportion of sublimate; this is particularly the case with that with which much iron is mingled. The workmen, by long experience, generally know the quantity of the addition which the gold of each mine requires. Very pure gold is perfectly melted in three hours. The colour of the gold smelted here, is of very different hues, from the most beautiful gold yellow, to reddish copper colour, bright yellow, and even grey yellow. They preserve a specimen of every shade, and showed us several hundreds. The gold bar, when cut, comes into the hands of the assayer (*ensayador*), who determines the weight and fineness, by the trial with sublimate. For this purpose, he takes a piece from one end of the bar, and in difficult cases from both. In bars from well-known mines, the trial is made only with the touchstone, for which they have on copper pins the specimens from sixteen to four-and-twenty carats (*quilates*), each of which is divided into eight equal parts. The purest gold which is smelted here, is of three-and-twenty carats and seven eighths. The mines of Villa Rica generally produce gold from twenty to twenty-three carats, those of Sabará and Congonhas de Sabará on the other hand, from eighteen to nineteen carats. That from the Rio das Velhas near Sabará, gives from nineteen to twenty. The gold of Cocaës and Inficionado is very pure, though not of a very fine yellow, but often pale or copper-coloured. When the weight and fineness, and, consequently, the value of the bar are determined and entered in the list, the Brazilian and Portuguese arms, the number of the list, the mark of the smelting house, the date of the year, and the degree of fineness are stamped upon it, and a printed ticket is given with the bar, which, besides all the above particulars, states the value in rees, the weight which the proprietor gave in gold dust, and how much was deducted for the king. Without this instrument, signed by the officers of the smelting house, the bar, which is returned to the owner, cannot legally pass instead of coin. It is strictly prohibited to export it from the province of Minas without notice, because the royal mints are to re-purchase the bars for their nominal value in ready money. But as an agio of ten per cent. is offered for the bars, even on the coasts of Brazil, this species of fraud is very common.

A correct idea of the great quantity of gold which has been delivered from the smelting houses at Minas, may be best formed by considering the immense works of King John V., the aqueduct of Lisbon, and the convent of Mafra, the expenses of which were entirely defrayed by the royal fifth of the Brazilian gold. It was, however, only in the first half of the last century that the produce was so great; the patriotic Portuguese, therefore, regrets to see riches buried in those costly monuments, which as they did not return in the sequel, might have been employed with more advantage to the nation in building a navy, At the end of the last century from seventy to eighty arrobas of gold were annually smelted in Villa Rica; but now, hardly more than forty. The whole of the royal fifth amounted, in the year 1753, to one hundred and eighteen arrobas; and up to the year to 1812, above six thousand eight hundred and ninety-five arrobas, that is eighty-five millions of crusadoes; at present, scarcely more than four-and-twenty arrobas. For the purposes of smelting, sixty arrobas of corrosive sublimate of mercury are annually purchased from Europe, of which the arroba costs sixty thousand rees. Even the vessels of graphite, in which the ore is smelted, are manufactured in Europe, though this material abounds near Barreiras, in Minas Novas. Attempts have been made to manufacture such crucibles in Mesquita, near Villa Rica, but they could not bear a white heat. In consideration, it is supposed, of the metallic treasures of this country and the possibility of appropriating them, a prohibition was issued, under the administration of Pombal, of the foundation of convents, or a permanent residence of monks in the whole province of Minas Geraës, a prohibition which is even now strictly enforced.

The Indians formerly possessed all these rich parts of the province, but were soon expelled, almost everywhere, by the colonists in their search of gold. Those who are still in Minas Geraës, have gradually retired into the impenetrable forests which cover the Serra do Mar, which runs along the sea-coast, extending inland to the breadth of thirty to fifty miles. These are the tribes of the Coroados, Coropós, Puris, Botocudos (Aimorés), Macuanis, Malalis, Panhámes, Ménhams, Paraibas (Goytacazes?). On the western side of the capitania, beyond the Rio de S. Francisco, detached wandering troops of Cayapos are sometimes seen. These tribes, excepting a part of the Botocudos and Cayapos, have all recognised the authority of the Portuguese, and are kept in awe, or governed by several military posts stationed by the government on the borders of the forests. To this end all the countries inhabited by the Indians are divided into seven districts, each of which is under a commandant, who is generally an officer or serjeant of the regiment of dragoons of Minas. The most troublesome Indians, and the most dangerous to the Mineiros, are the cannibal Botocudos, who chiefly reside on the banks of the lower parts of the Rio Doce. But, as it has been found of late years that the navigation of this river, the sources of which, and of the upper collateral rivers, rise in the capitania near Villa Rica, might be very useful, a society was formed for the purpose of rendering the Rio Doce navigable, and for the civilisation of the Indians residing upon it (Junta da Conquista e Civiliziçâo dos Indios, do Commercio e Navegaçâo do Rio Doce). These endeavours have hitherto been successful, several Indian tribes having gradually begun to trade with the Portuguese. We had already heard a great deal of these children of the forest, and our desire to see one tribe of them in their own abode became more urgent. As we were now only four or six days' journey distant from the nearest Indian tribes of the Coroados, Puris, and Coropós, we resolved to proceed in search of them to the Rio Xipotó, an arm of the Rio da Pomba. Our friend, Mr. Von Eschwege, had some years before paid them a visit, in company with Mr. Freireiss; and our present expedition was peculiarly favoured by the circumstance, that the officer appointed to subdue and civilise those Indians, Mr. Guido Marlier, a Frenchman by birth, who had formerly served in the regiment of Condé, was just then in Villa Rica for the recovery of his health; unfortunately he died soon after. This worthy man who had himself made many observations on these Indians, took pleasure to give us the most necessary information respecting the manner of behaving towards them, and the road to his residence, the Presidio de S. Joâo Baptista, sent one of his people to accompany us thither, and gave us written orders to the servants of his house, and the soldiers of the post, to promote our wishes in every particular.

## NOTES TO CHAPTER I.

### Note 1.

*Population of Minas Geraës, in the Year* 1808.*

| COLOURS. | FREE PEOPLE. | | | SLAVES. | | | TOTAL. |
|---|---|---|---|---|---|---|---|
| | Males. | Females | Total. | Males. | Females | Total. | |
| Whites.......... | 54,157 | 52,527 | 106,684 | — | — | — | 106,684 |
| Mulattoes...... | 64,406 | 65,250 | 129,656 | 7,857 | 7,880 | 15,737 | 145,393 |
| Negroes......... | 23,286 | 24,651 | 47,937 | 86,849 | 46,186 | 133,035 | 180,972 |
| Total...... | 141,849 | 142,428 | 284,277 | 94,706 | 54,066 | 148,772 | 433,049 |

By a late though not authenticated statement, for the communication of which we are indebted to Marshal Felisberto Caldeira Brant Pontes, of Bahia, there were reckoned in Minas Geraës, in the year 1820, 456,675 free, and 165,210 slaves; in all 621,885 inhabitants. The comarca of Oiro Preto or Villa Rica, contained, according to Mr. Von Eschwege (*loc. cit.*), in the year 1813, 72,209 inhabitants, though, according to a list quoted by him, it had, in 1776, 78,618, that is 6,409 more. Mr. Von Eschwege justly considers the decrease of the gold-washing, and the consequent diminution in the number of negro slaves imported, as the cause of this circumstance; which, however, must not be understood of the whole of Minas Geraës, as the comarca of Oiro Preto is precisely the richest in gold mines, but the poorest in fruitful land, and was therefore abandoned by many farmers. With double the population, Minas has three and a half times as many negro slaves and nine times as many free negroes as S. Paulo.

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* According to Mr. Von Eschwege's Journal of Brazil, vol. i. p. 209.

### Note 2.

The first discoverer of Minas Geraës appears to have been Sebastiâo Tourinho, of Porto Seguro, who, in the year 1573, sailed up the river Doce and returned to the coast along the Jequetinhonha. He was followed by Ant. Dias Adorno and Marcos d'Azevedo for the purpose of seeking the emeralds and sapphires (aqua-marines, green tourmalines, and blue topazes?). But this country became more accurately and quickly known in the latter part of the seventeenth century by means of the journeys by land, which were undertaken by the Paulistas, not to carry away the Indians as slaves, but to collect gold. Ant. Rodriguez, of Taubaté, in 1693, traversed the eastern part of the province; Bueno, Miguel d'Almeida, in 1694, and Manoel Garcia, in 1695, the districts of S. Joâo d'El Rey, Sabará, and Villa Rica. The Serro Frio was discovered by Arzâo and Antonio Soares, perhaps twenty years before. The quantity of gold which these adventurers brought home induced great numbers of native Brazilians, as well as Portuguese, to emigrate to this new Eldorado. The land was soon peopled; Villa Rica and Mariana were declared villas in 1711; S. Joâo d'El Rey and Sabará, in the year 1712; and Villa do Principe, in the year 1714. Since the year 1720 Minas has been a separate capitania, independent of S. Paulo, to which it had before belonged; and in the same year it received a superintendant of the gold-washings. Lourenço d'Almeida, the first governor-general, already found the country a little peopled, and divided into four comarcas. In the year 1818, Villa Rica was declared the capital of Minas, in the same manner as Villa Boa of

Goyaz, and Villa Bella or Matto-grosso. (See Corografia Brasilica, vol. i. p. 356., and Southey's History of Brazil, vol. i. p. 312.)

### NOTE 3.

Mr. Von Eschwege (Geognostisches Gemälde von Brasilien, 1822, p. 15.) observes — "Unless I reckon as such some patches of sandstone, the flötz formation is entirely wanting in the interior of Brazil; on the other hand, the formation of the alluvial rocks acts an important part, which, partly in a solid, partly in a loose form, do not so much cover high mountains as fill up valleys. To the first belongs the iron-stone conglomerate, entirely unknown to the old world, and for which I retain the name given it in the country, *tapanho-acanga*." To this we must observe, that the numerous and various fossils in our possession from this flötz formation evidently prove that the tapanho-acanga is an *iron-stone flötz*, which belongs to the *quadersandstein formation* *, which is known to every geologist in the old world. In the circle of the Regen and Upper Maine, in the kingdom of Bavaria, this iron-stone formation occurs in tracts, miles in length and breadth, and is incumbent sometimes on primitive, and sometimes on flötz mountains. In the vicinity of Amberg the main flötz mass consists in clay, partly of a grey and yellowish colour, partly tinged more or less red by iron-ochre, of yellow earth, of tuberous pieces of hardened lithomarge, coloured clay, &c., in which are found irregular, generally tuberous, pieces of clay, and of compact, fibrous, brown iron-stone, rarely black iron-stone with grey manganese-ore, and still more seldom wavellite between clay iron-stone. The roof is *quadersandstein*, which is traversed in various directions by what is called sand iron-stone; the base is the same sandstone, but mostly the Jura or shell limestone, which we consider the last member of the first formation, primitive clay-slate, and limestone. At Bodenwehr, the principal mass is a thick clay flötz, in which there is more clay iron-stone than brown iron-stone. In the base, which, as well as the roof, is quadersandstein, there is also magnetic iron-stone, partly disseminated, partly in reniform pieces, in a variety of clay iron-stone mingled with green earth. On the Schindelloh, near Pullenreuth, on the eastern foot of the Fichtel mountain, there is frequently, instead of the clay, what is called earthy talc of a greyish white, yellow, and red colour, according to its mixture with oxyde of iron. In the cavities of the iron, greyish white amethyst, which often passes into chalcedony, is found on the brown hæmatite; sometimes, too, green iron-earth is observed on tuberous horn-stone. Who does not here recognise the identity of the iron-stone flötz in Bavaria with that in Brazil, though in the former there are no topazes, no gold, and no pieces of ironglance; and the yellow earth, and the lumps of hardened lithomarge, and the coloured clay, as well as the earthy talc, supply the place of the lithomarge which is so frequent and so variously modified in Brazil? The parallel between these two formations becomes more complete by the discovery of wavellite in the iron-stone flötz near Villa Rica (Von Eschwege's Gemälde, p. 31), which has been confirmed to us by the verbal communications of Dr. Pohl.

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* This German word is retained for want of an English synonym. *Trans.*

### Note 4.

We consider Mr. Von Eschwege's iron mica-slate to be no more an independent kind of rock than the tapanhoacanga. In many parts of Bavaria, for instance, the Fichtelberg, and at Floss, there is granite in which iron-mica supplies the place of the common mica; but no geologist has ever thought of taking it for a distinct kind of rock. It forms layers and partly also *Stückgebirge* which belong to the common granite, and are to be considered as subordinate in it. A similar modification of granite occurs also in Brazil, namely, in the Serra do Mar, in the province of S. Paulo (according to Varnhagen's observation in Eschwege's Journal, vol. ii. p. 241.), and in several places of the capitania of Bahia.

## Note 5.

The quartzy, granular mica-slate, elastic quartz, flexible sandstone, or quartz-slate of the Morro de Villa Rica, consists of a greyish and reddish white, not unfrequently smoky grey, fine and very fine-grained quartz; and of a silvery white, more or less dark, pearl-grey, seldom pinchbeck-brown, very delicate scaly mica, which is sometimes tinged red by oxyde of iron on the rifts. The quartz sometimes loses its granular structure, and forms narrow strata of compact splintery fracture; in the same manner the silvery mica often accumulates on the rifts in undulating strata, often half an inch thick, and has in that case a remarkable mother of pearl lustre. Mr. Von Eschwege (Gemälde, p. 17.) says of this mica-slate, that it is composed of quartz, talc, and chlorite, of slaty structure, but in a geognostical view is different from mica-slate, and as such deserved to be classed as a separate kind of rock, which he calls *Itacolumite.* After an accurate examination of a great number of pieces of very different colours, which are preserved as well in the Brazilian museum at Munich, as in other collections, we are entitled to conclude that this rock neither belongs to the sandstone, where Mr. Eschwege classed it in his earlier publications, nor consists, besides quartz, of talc and chlorite; for we have never observed the latter ingredients. The supposed talc is merely a modified mica, which contains nothing less than a predominant talc-earth, and what are called chlorite scales are partly silvery, partly pearl-grey mica scales, which are sometimes tinged red by oxyde of iron. We have not observed, in any single piece, the true chlorite, which is always distinguished by its decidedly green colour, and the considerable proportion of talc earth and iron, and forms indeed subordinate layers, as well as a component part of the veins and beds of ore in mica-slate, but no immediate constituent part. Vauquelin, in vol. lvi. p. 59. of the Journal de Phys. (Scherer's Journal de Chem. No. xxxviii. p. 189.) has analysed a piece of white chlorite, from what place is not known, and finding it to contain 56 parts silex, 18 argillaceous earth, 6 alkali, 3 lime, 4 iron, and 5 loss, he perceived that this fossil was not chlorite, and called it Margariton, on account of its mother of pearl lustre. As the undulating mica accumulated on the rifts of the mica-slate in our possession, to the thickness of half an inch, exactly coincides with that described by Vauquelin, this may furnish an additional reason to affirm that Mr. Von Eschwege's "silky shining scales" (*loc. cit.* p. 17.) are not talc, and much less chlorite.* The mica-slate, formerly known under the name of flexible sandstone, is distinguished from the common only as the greyish white quartz is the chief constituent, and has a granular structure, whereas the quartz of the mica-slate of the old world is mostly of a compact structure. We however find in Europe varieties of the mica-slate, which resemble the Brazilian. Thus, for instance, in Gastein, in Anlaufthale, in the province of Saltzburg, there occurs in narrow subordinate beds in common mica-slate, a variety, the quartz of which is also granular, and the mica, fine scaly, and so like the Brazilian in colour, that it might be supposed this variety of the mica-slate had been taken from Mount Itacolumi. Strictly speaking, Mr.

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* See Von Eschwege's Accounts of Portugal, published by Zinken, who (p. 234.) has made well-founded objections against the denomination, chlorite, and confirmed them by its fusibility by the blow-pipe, but erroneously called the fossil, talc.

Eschwege's itacolumite, on account of its texture, stratification, bed, and formation, should be called quartz-slate, in analogy with other rocks of a slaty structure, or, if we will not expressly indicate the texture, quartz-rock; whereby we cannot suppress the remark, that the topaz, beryl, shorl, and horn rocks, may the more properly be classed with this formation as the topaz, beryl, shorl, &c., may be considered as not essential parts, as in other rocks in which they are found.

We had long since written our ideas on the occurrence of the elastic quartz, when we received the second number of the accounts of the Austrian naturalists in Brazil, and Baron Von Humboldt's Geognostical Essay on the Superposition of Rocks in both Hemispheres. We were rejoiced to see in the former (p. 81.) that Dr. Pohl called the elastic quartz likewise quartz-slate; but his opinion that this rock is of recent formation, and doubtless of alluvial origin, agrees even less than the supposition before brought forward by Mr. Von Eschwege, that it is sandstone, with the true relative age of it, so that we presume that our respected fellow-traveller has already corrected his opinion. We have found the opinion of Baron Von Humboldt entirely coincident, and confirming our own, for (p. 94. of the German edition) he directly classes it as quartz-rock. We cannot but feel highly obliged to this great geologist for having by his determination thrown light upon this subject.

## Note 6.

The clay-slate which we remarked in the mine of Mr. Von Eschwege, is of a cream-colour, inclining to brownish yellow, and consists merely of small scales of mica, which are soft to the touch, and easily crumble. This is probably Mr. Von Eschwege's transition into talc-slate, to which, however, it does not belong, but rather to mica-slate. This clay-slate is sometimes of a dirty greenish grey, and is traversed by narrow strata of a compact brown iron-stone, parallel to the slaty texture of the rock. This brown iron-stone is often grown together with greyish white quartz, which is full of little drused cavities, and gives reason to suppose that quartz veins traverse the clay-slate. Gold in small scales is embedded in the brown iron-stone. A clay-slate, quite resembling this, is found in Bavaria, near Leonhardsberg, next to Waldsassen. In it there are likewise veins of quartz, with brown iron-stone, the specimens of which perfectly agree with those of Villa Rica. Only these veins, like all the fossils hitherto compared with those of Brazil, contain no trace of gold. The carvoeira itself, which we brought from the abovementioned mine, shows many differences with respect to its component parts. Sometimes the proportion of manganese is greater, and the colour of the mass then assumes a blackish green colour. Slender layers of brown iron-stone, which is often already decomposed into yellow ochre, and of quartz, which appears embedded in rounded grains, sometimes traverse the mass. Small grains of pure gold, and very small acicular crystals of noble shorl, occur in this mixture. Lastly, the mass sometimes migrates into earthy, ferruginous, grey manganese-ore, which however is always mixed with very fine quartz grains. In this formation it contains many cavities, which are partly covered, partly filled with a silver-white talc. In this earthy grey manganese-ore there are pieces of a greyish white quartz, embedded with irregular crystals of noble shorl. The latter of a dark leek-green and black colour, in small and very small capillary crystals, is sometimes so intimately blended with the very fine-grained friable quartz, which makes a part of the mass, that the latter appears massive, and resembles shorl-rock. It forms single, as it seems, mostly truncated, pieces, in which, again, what is called unctuous quartz, with very small shorl crystals, is embedded. The pearly mica is particularly beautiful on this bed. It is of an emerald-green colour, through which the pearl-grey shines in many places, of a strong lustre, and very bright mother of pearl hue. On the piece now before us, there are small dark leek-green transparent crystals of electric shorl, in various directions, in which, besides very small grains and particles of pure gold, greyish white apatites crystallised are embedded in the low six-sided prisms, truncated at both ends. The crystals are small, and the rifts of the pearly mica are not unfrequently covered with brown oxyde of iron. Quartz seems to be a constituent part of this auriferous bed. It is of a smoky grey colour, which is tinged reddish grey, by oxyde of iron. In this quartz are also embedded acicular crystals of a dark green electric shorl. It is partly full of little drused cavities, which are covered with a dirty apple-green, probably caused by copper nickel. This quartz also contains arsenical pyrites, as it seems in blunt-edged pieces, surrounded by brown oxyde of iron, in which native gold is embedded in very small cubes. It has a silvery colour, approximating to tin, and no particular marks of distinction. Mr. Von Eschwege (p. 20.) observes, that on this bed iron pyrites and antimony also grow, on which, as these fossils did not fall under our observation, we have the less reason to make any remark, as their appearance cannot be disputed on geognostical principles.

## CHAPTER II.

### JOURNEY FROM VILLA RICA TO THE COROADOS INDIANS ON THE RIO XIPOTÓ.

On the 31st of March we left Villa Rica, taking with us only one mule and a driver, because on such excursions it is advisable to have as little baggage as possible. The morning was cool, and the fog sinking on the mountains, gave us reason to expect a fine day. We ascended by a broad road over the rocks, and which was partly paved, through the northern part of the town, and over a steep projection of the Morro, whence we had a fine prospect of the majestic Itacolumi, which commands the whole surrounding country. In the deep valley, formed by the declivities of this mountain and of the Morro, flows the auriferous Ribeirâo do Oiro Preto or do Carmo, through verdant meadows and between romantic broken rocks. Very near to Villa Rica we passed a spring which is enclosed; it is chalybeate, and is said to possess very salutary properties. Not far from this we also remarked several of the pits in the quartzy slate, which we have mentioned before, and which formerly produced so much gold, but have not been worked any farther. The road led us along the Morro into a beautifully romantic landscape, by the side of flowery slopes, adorned with masses of rock resembling magnificent ruins. Many small houses stand on the road-side, and the numerous travellers passing backwards and forwards, give this country an appearance of prosperity and European activity. Past the little hamlet Tacoaral, the road was winding, becoming steeper and steeper as it descended, till about a league from Villa Rica, we reached in the valley the larger village of Passagem, the inhabitants of which chiefly subsist by the cultivation and sale of provisions for the capital. The gold mines of this place, especially those in the Morro do S. Antonio, where a chapel, *ex voto*, was erected to that Saint, were formerly very productive, but are now nearly abandoned. At the bottom of the village we crossed over, by a small stone bridge, to the right bank of the Ribeirâo do Carmo, the waters of which diffuse a refreshing coolness in the narrow valley, and then by numerous windings ascended a mountain, from the summit of which we beheld the Cidade de Mariana, in the flat valley filled with rolled pieces of rock, brought down by the Ribeirâo do Carmo.

This town, containing 4800 inhabitants, consists of small cleanly houses, built in pretty regular and broad streets, and makes an agreeable impression on the traveller. Since the year 1745, it has been a city and the residence of the bishop and the chapter of Minas Geraës; but since the neighbouring mines, particularly on the Morro de S. Anna, have become less productive, it seems to have greatly declined in prosperity, and to be neglected out of jealousy, by the neighbouring civil authorities, in Villa Rica, which is the reason that the new cathedral church is not finished. There are here a Carmelite and a Franciscan convent and a Theological seminary, at which most of the clergymen in Minas are educated. The bishop had resided in a spacious house at the bottom of the valley, but had died a short time before our arrival. We heard much of his library, which was said to contain many works on Natural History, and likewise his museum, in which there are some rich specimens of gold In a kitchen-garden, he had a nursery of European fruit trees, which thrive very well here. The diocese of the bishop of Minas, whose fixed revenue is stated at 16,000 crusadoes, but is perhaps twice as much, does not extend over the whole capitania of Minas, because several of the most northern districts belong to the archbishopric of Bahia.* We here became acquainted with Dr. L. J. de Godoy Torres, who has resided for many years at Mariana, as physician to the district. He described the climate of Mariana as warmer, and therefore less healthy than Villa Rica.

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* See Note, p.267.

A difference in the character of the diseases must certainly be caused by the great difference in the elevation above the sea (Mariana, according to the calculation of our friend, Mr. Eschwege, Journ. vol. i. p. 37, lies 398½ toises above the level of the sea, which is 231½ lower than Villa Rica), and the confined situation. Among the prevalent diseases, Dr. Godoy mentioned erysipelas, dropsy, slow fevers, diarrhœa, and ischias nervosa; syphilis is no less common here than in the rest of Minas.

The sun had not yet risen on the following morning, and all lay buried in profound sleep, when we left our miserable lodging, and continued our journey towards the N. E., over a steep mountain, which forms the eastern wall of the valley near the city. It is a projection of the Itacolumi, which is very near, and consists of crumbling iron mica-slate, and granular mica-slate, with scattered layers and nests of mica, in which garnets and octahedrons of magnetic iron-stone are embedded. When we had arrived at the summit of this mountain, we saw some single chains joining the Itacolumi, irregularly crossing each other, and for the most part covered with woods, between which there are deep and dark valleys; a gloomy picture, which was rendered still more melancholy by the loneliness of the surrounding scene, and the numerous crosses on the way, erected as monuments for those who have been murdered by fugitive negroes. There are only a few plantations, but great tracts of forests, which have been cleared, but, being since abandoned by the farmers, are now covered with thick brushwood of the Sambamjaba (*Pteris caudata*). In the midst of this solitude we met with a farm called Ourives, in the vicinity of which gold is washed for. The formation here is of a yellowish brown, fine and often ferruginous clay-slate; which contains nests and veins of auriferous quartz. Incumbent upon it is a red, unctuous clay, sometimes of considerable thickness, with which are mingled many fragments of white quartz. These countries, however, are not so rich by the metals which they produce, as by their fertility, and it is to be expected, that the business of mining will entirely yield to that of agriculture. Maize bears in the first year 400 fold; a harvest of 200 is but moderate, and of 100 bad.

The prospect became gradually more and more confined; we passed on the edge of thickly wooded, frightfully deep precipices, and found ourselves removed at once from light plains, into the profound obscurity of the forests. Thick interlacings of climbing plants, wreaths of flowers, glowing in the greatest diversity of colours, connect the gigantic trees, between which, scaly stems of ferns form majestic dark green cool avenues, through which the traveller passes in silent meditation, sometimes only disturbed by the screams of the parrots, the hammering of the woodpeckers, or the howling of the monkeys. Except some trenches by the side of the road, which conduct the water for gold-washing, there is nothing in this solitude to put one in mind of the vicinity of the labours of man. We enjoyed, with delight, the cool shade of the forest, which offered us abundance of treasures, that were doubly agreeable to us after we had been so long in the campos. After a journey of two leagues, we at length descended into a luxuriant valley watered by the Rio Mainarde, which flows into the Rio Doce. This river was so much swelled, that it threatened to carry away the decayed and trembling bridge, and we had reason to congratulate ourselves on having reached the opposite bank, where we found good accommodation in the lonely venda belonging to Padre Manoel. On the western side, the valley is bounded by a steep declivity, on the eastern are rocky hills, adorned with ferns and gay flowers, over which a footpath conducted us to a gold-washing. The clay containing the gold was thrown up into heaps, and many negro slaves were employed in washing it. Gold-washing is become so customary in Minas, that even the most unprejudiced landowner believes that he must at least employ some slaves in it. The weekly wages of a workman are reckoned at 600 rees.

Our road on the following day led over a mountainous country, close to deep ravines, wildly overgrown with shrubs and ferns, shadowed with thick wood, till we at length descended into a solitary valley, and reached the fazendas of Oiro Fino, and those of Dos Cristaës, and of Coronel Texeira. Numerous trenches by the side of the way, hollowed slopes, and heaps of rolled stones and clay, bore testimony to the zeal with which the people here wash for gold. The principal works are those belonging to an ecclesiastic, who has not only the clay which is dug up, but also the boulders of the stream, washed. In the latter we observed besides quartz and mica-slate, hornblende and gneiss. We passed the night at the house of another ecclesiastic, to whom we had letters. Our youthful host, whom we found surrounded by many half-white women and children, and whose library was limited to Ovidius de Arte Amandi, seemed to us a worthy counterpart to the hermit in the Decameron.

The weather was very gloomy on the following day, and we hastened past several handsome farmhouses upon hills, between which the Ribeirâo do Bacalhâo winds. Large rhexias (*quaresima*) covered with purple flowers adorned the hill from which we descended, towards evening, into the village S. Anna do Ferros formerly called Barra do Bacalhâo. At this place, the Ribeirâo do Bacalhâo, and, soon after, the Rio Turbo, join the Rio Piranga, which runs to the N. E. and joins the Ribeirâo do Carmo, after which the two united rivers take the name of the Rio Doce. The village consists of a few houses, which are chiefly inhabited by mulattoes and negroes. Even in this remote spot we found traces of European manners and civilisation; the venda was furnished not only with some of the most necessary provisions, such as bacon, sugar, brandy, maize, flour, but also with cottons, lace, iron-wares, and similar articles. In the evening, the captain of the place, a Portuguese, as a special mark of attention brought us some fresh bread, which he had had baked for us of wheat flour. The gold washed in the Rio Piranga is so fine, that it often forms a thin skin floating on the water, and therefore cannot well be separated, except by amalgamation. In performing this operation, they expose the amalgam in an open crucible to the fire, and catch the volatilised mercury in a pisang leaf, formed into the shape of a cornet.

The succeeding day we passed near to the Venda das duas Irmâs, the sandy gravel ground at the union of the Rio Turbo and the Rio Piranga, and rode into a mountainous and woody country. Damp clouds and fogs frequently veiled the summits of the forests (*Matto dos Puris*) round us, and reminded us of the autumnal season in our own country. Towards evening we reached an elevated and pleasant valley, and found a night's lodging in a fazenda in the Capella de S. Rita. A much more fatiguing journey awaited us the next day; we had scarcely traversed the well-watered valley when we stood before the entrance of a forest, into which the sun appeared never to have penetrated. The gneiss and granite formation, which here basks out in several places, with the character of the vegetation reminded us still more than before, that we had passed again from the Alpine district of mica and clay-slate, and from the open campos, into the region of the Serra do Mar. The path grew so narrow that one mule could scarcely go behind the other; the forest became gloomy as the Inferno of Dante; and the way, growing narrower and steeper, led in mazy windings on the edge of deep precipices, traversed by impetuous torrents, and here and there bordered with detached rocks. The horrors with which this savage solitude filled our souls, was enhanced by the apprehension of an attack of wild animals or hostile Indians, which occupied our imaginations with the most gloomy ideas and melancholy forbodings. Our joy therefore was inexpressible when we reached the other side of the mountain of the Serra de S. Geraldo, and saw the glimmer of daylight gradually penetrate. After we had conquered a part of the way which descended precipitously and resembled a ravine, we overlooked a forest of prodigious extent, bounded towards the S. W. by the Serra da Onça, which is likewise covered with wood. We had scarcely descended into the wide plain between these two mountain chains, which chiefly consist of gneiss, and are about 2500 feet high, when we were surprised by seeing in the narrow path two human figures. They were both naked and their jet black hair hung over their shoulders. They crept along with short step and necks contracted, looking sometimes to the right and sometimes to the left; the man went first, carrying a bow and arrow in his left hand, and had a bundle of arrows hanging over his shoulders. The woman, with the older children followed him, and carried on her back a basket made of palm leaves, which was fastened by a band to her forehead, and contained the domestic utensils, their provisions, such as maize, mandiocca, Spanish potatoes, an earthen pot, &c. Upon it sat a little child, a few months old, which had its arms around its mother's neck. Scarcely had we perceived each other, when they hurried into the forest and disappeared.

When we had reached the first fazenda in the plain, we met with several of these Indians, some with, and some without weapons, who appeared to live upon good terms with the mulattoes and negroes here. We went up to them and saluted them in a friendly manner; they however turned aside silent and distrustful, but at length accepted the glass beads, knives, and other presents which were offered them. Even the brown and black inhabitants seemed not pleased with our arrival, so much did they participate with the Indians in the savageness and rudeness of the place. We therefore found ourselves very uncomfortably situated in this company, and passed a sleepless night, not without apprehensions of a surprise, in a barn which did not afford either us or our effects sufficient protection from the rain which poured down in torrents. A thick fog still covered the high trees of the forests, when we set out on the following morning, for the Presidio de S. Joâo Baptista, the intended termination of our journey, which we reached at noon. This little spot, consisting of about thirty houses, entirely surrounded by thick forests, or, where these were cut down, by fruitful plantations, was the head-quarters of Mr. Marlier, at that time director-general of the Indians; we found here two soldiers, who had already received directions to accompany and protect us in our excursions through the woods, and on our visits to the Indians. Under the director-general there are several directors, who are considerable landowners, each having respectively the superintendence of the settlements (*aldeas*) nearest to him.

The principles upon which these directors and the cabos subordinate to them are to promote the civilisation of the Indians, do honour to the government. In general, the directors are to be in the character of guardians to the Indians collected in villages (*Indios aldeados*). Their chief duty is to settle the Indians who submit, in villages; to induce them, by prudent measures, to cultivate the land assigned to them as their property; and, in general, to afford them advice and assistance in the state of society which is new to them. To preserve these new vassals, to overcome their innate love of a wandering life, and to accustom them to a permanent settlement, the government has provided that the newly settled Indians shall not only be exempt from all taxes for the first ten years, but also receive gratuitously from the director, for the first years, a certain quantity of maize-flour, maize, and agricultural instruments, such as knives, hoes, and axes. According to the law given by King Sebastian, confirmed by Joseph I., and now generally prevalent in Brazil, which declares all native Indians exempt from slavery, and free citizens, the director-general, as well as the respective directors, are commissioned to secure the Indians against the frequent hateful encroachments of the neighbouring colonists; and, in general, to take care that they enjoy the protection of the law as free citizens; but that, on the other hand, their faults be noticed and punished by the magistrates. Though positive laws secure to the directors a certain share of the gain of the Indians, those in Minas Geraës get nothing of this kind, because the Indians settled here have not yet been prevailed upon, after many years' trial, to cultivate more than the mandiocca and maize which are absolutely necessary. The advantage of the director, therefore, is only that by mildness and liberality he can engage his new neighbours to assist him in his own business, in felling the woods, planting or gathering the medicinal roots, &c., receiving, as compensation for their labour, their subsistence, or low wages.

The director of the nearest aldeas of the Coroados does not live in the Presidio de S. Joâo Baptista, though he has a house here, but in his plantation (*rossa*), about a league distant, from which he came on the following day to visit us. This custom of residing for the greater part of the year in a remote country-seat, at a distance from the more populous places, prevails throughout Brazil. It has the most injurious consequences on morality and domestic happiness, because the man and wife frequently live separate for months together, which gives occasion to many irregularities. The director informed us that there were at present only a few Coroados in the neighbouring aldeas, and that most of them were gone to the stream of Buhahé, ahout twelve leagues to the east, where they were gathering ipecacuanha. In order, however, to gratify our wish, closely to observe some Indians, he invited those who were still on the spot, to come to our lodging, making them many promises. Several came, and sat down in the entrance of the house, where we treated them with brandy. They were all very sullen, silent and distrustful, probably because they were afraid that we should take them away for military service. They were not to be diverted either by friendly treatment, presents, or music; but thought only of means to escape into their forests. In fact, all of them successively disappeared; we were therefore obliged to defer our observations on these children of nature till our arrival at Guidowald, the fazenda of the director-general, which lies about five leagues to the south of S. Joâo, in the middle of the Indian villages, and employed the time of our stay here in excursions in the neighbouring forests. These intricate woods, in the interior of which almost eternal darkness prevails, are calculated to fill the soul with awe and terror; we never ventured to penetrate into them without being accompanied by soldiers, or at least being well-armed and keeping close together. Even near to the rossas there is danger, and the traveller has to defend himself from furious dogs that keep watch, almost as much as from the wild beasts of the forest. A great number of the most remarkable insects, and especially beautiful beetles, butterflies, new birds, and several rare quadrupeds, such as the *tamanduá-bixuna*, rewarded the researches of the zoologist. These forests, though detrimental by their constant humidity to the preservation of the plants, are extremely important to the botanist by their richness, particularly in numerous medicinal plants. The genuine ipecacuanha root (*Poaija*) is found here in pretty large quantities; it belongs to a low shrub (*Cephaëlis Ipecacuanha*, Rich.) which grows, and always in groups, on the greater part of the Serra do Mar, from Rio de Janeiro to the north, as far as the capitania of Bahia, in damp shady places in the woods. Now, in the month of April, the plant had berries nearly ripe. The gathering of the roots is performed by Indians, and by the negro slaves of the neighbouring landowners during the whole year, but principally immediately after the rainy season, for then the ground being soft, it is more easy to pull up the roots. The Indians do not pay any kind of attention to the propagation of the plant, but pluck up, without distinction, all the roots they can find; so that after a time this valuable medicine may become scarce, unless they take care to raise the plant from seed. The roots, being plucked up, are tied in bundles, dried in the sun, and disposed of to the neighbouring landholders or to dealers in roots, who come from Rio de Janeiro, and from the campos of Goytacazes. The price in the forest is very trifling, about two hundred rees per pound; the Indians, however, do not take money, but only goods in exchange, such as brandy, iron-ware, cotton handkerchiefs, &c. We were assured that the savages had learnt the use of the ipecacuanha from the irara, a kind of martin, which is accustomed, they say, when it has drank too much of the impure or brackish water of several streams and pools, to chew the leaves and the root, and thereby excite vomiting. But this is, perhaps, one of the many unfounded traditions which the Portuguese have adopted, without examination, from the Indians. Here, and in general in Brazil, the ipecacuanha is taken in a cold infusion which has stood twelve hours, and the dose is usually larger than in Europe, because the root contains more aqueous parts. Besides the ipecacuanha, the woods of S. Joâo Baptista contain many other valuable medicinal roots, such as *anda-açu*, the *bicuiba* (*Myristica officinalis*, Mart.), the *piriguaja*, *bútua*, *salsa*, *raiz preta* (*Chiococca anguifuga* *, Mart.); the use of which is introduced among the Portuguese no less than among the Indians. One of the greatest ornaments is the *sapacáya*, or pot-tree (*Lecythis Ollaria*, L.); its immense stem is above a hundred feet high, and spreads into a majestic and vaulted crown, which is extremely beautiful in the spring when the rose-coloured leaves shoot out, and in the flowering season, by the large white blossoms. The nuts, which have a thick shell, are of the size of a child's head, with a lid which is loose all round, and which at length, when the weight of the fruit turns it downwards, separates, and lets the seed fall out. In a high wind it is dangerous to remain in the woods on account of these heavy nuts falling from so great a height. The seeds are collected in great quantities by the Indians, who are extremely fond of them, and either eat them raw, or preserve them roasted and pounded, in pots, and the shells themselves are used as drinking cups. The inhabitants of the presidio, and particularly the priest, who, like most of his parishioners, was of a brown complexion, did their utmost to make our residence in this wilderness agreeable and useful; they daily brought us some animals or plants which they thought worthy of our attention. On these occasions we could not sufficiently admire the accurate practical knowledge which the inhabitants of this retired spot had acquired in their intercourse with nature; they were able to distinguish almost every animal, every tree, every plant of the forest, by its peculiar name, and to give a particular account of the properties of many of them.

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* Respecting the Brazilian ipecacuanha, see Martin's Specimen Materiæ Medicæ Brasiliensis, Dissert. I. in the Memoirs of the Academy of Munich, 1823.

On the 10th of April, we left the presidio, and, accompanied by a soldier, set out for the Fazenda Guidowald. The road, though cut with rather more care, scarcely seemed to indicate that we were approaching the residence of the director-general; on the contrary, we sometimes had difficulty in passing without injury over the deep ditches and holes. A dark forest covered us, and the most singular notes of various animals were heard in the distance. The magical solitude and the wonderful luxuriance of the forest, kept our mind balanced as it were between the feelings of fear and joy. We beheld with astonishment on the summits of the trees, many birds of the gayest plumage, and bright garlands of the most beautiful climbing plants and parasites; but we were obliged to content ourselves with admiring them at the unattainable height at which they were placed.

Towards noon we were near the Aldea do Morro Grande, where several families of the Coroados reside, and by the advice of our soldier we entered a side path leading to them, having left our mules and arms at the neighbouring fazenda of a white colonist. Nothing but confidence in the experience of our guide, could have induced us to proceed in the narrow and intricate path, till we at length came out of a thicket to a rather lighter spot by the side of a stream, in which we perceived a naked Indian woman, painted with all kinds of figures of a dark blue colour. She was employed in pouring water over herself, and on our appearance she was as much astonished as we. Her black shining hair hung like a cloak over her reddish brown shoulders, and various drawings and figures difficult to be explained, ornamented her face and breast. On the cheek she had a circle and over that two strokes; under the nose several marks resembling an M; from the corners of the mouth to the middle of the cheek were two parallel lines, and below them on both sides many straight stripes; below and between her breasts there were some connected segments of circles, and down her arms the figure of a snake was depicted. This beauty wore no ornaments, except a necklace of monkeys' teeth. Scarcely had she recovered from the surprise occasioned by our appearance, when she hastened with all speed back to her hut. We observed that on the information given by her of our arrival, most of the Indians threw themselves into their hammocks, or hid themselves in their huts, and some others fled into the neighbouring wood.

When we reached the huts, no female was to be seen, except a few old women; the men lay silent, motionless, and with their backs turned to us, in their hammocks. Our military guide went first into their habitations, saluted the savages, and gave them to understand, as well as his knowledge of their language would permit, that we had come from a very distant country to visit them, and to employ ourselves in collecting birds, butterflies, and plants. This declaration seemed to make but little impression upon them, they swung, as before, silent in their hammocks, and looked at us only by stealth. Even good words and presents had no effect upon them; on our asking for a draught of water, one of them turned his head, and pouting out his mouth, and with gestures indicating impatience, pointed to the neighbouring stream.

During this mute intercourse, we had time to observe the domestic arrangement of this people. Their huts were built upon the bare ground, supported by four corner posts, twelve or fifteen feet high, and were from thirty to forty feet long. The walls made of thin laths connected by wicker-work, and sometimes plastered with clay, had on both sides openings the height of a man, with movable doors of palm leaves; the roof was made of palm leaves and maize straw, the hut was closed on the windward side; or where the sides were entirely open, the roof extended much further and lower down. In every hut there were, in different parts of the floor, hearths for the several families residing in it. Some families had huts resembling tents, entirely made of palm leaves. There was no other issue left for the smoke than through the roof and the doors. Hammocks made of cotton cords, which at once supplied the place of tables, beds, and chairs, were suspended to the posts round the huts, about a foot from the ground; they are the chief article of furniture, and often serve the man, the woman, and the child as their common bed. Some earthen pots; baskets made of palm leaves, filled with Spanish potatoes, maize, mandiocca roots, and other fruits of the forest; drinking vessels (*cujas*), dishes with orlean and genipapo colours; a hollowed trunk of a tree, for pounding maize, constituted the whole of their household furniture. The arms of the men, bows and arrows, lean against the walls. In the hut of the chief hangs an ox horn, the tip of which is cut off, which he uses to announce to the neighbours the arrival of a white man, or any other event, or to summon them to festivals and wars. The *Maracá*, a longish gourd shell, filled with maize, fastened to a handle, with which in their dancing, they make a rattling as with castanets; some tufts or wreaths of coloured feathers, to adorn their heads and arms on festal occasions, complete their simple furniture; many beautiful, and hitherto unknown parrots; several species of wood-hens, particularly the pretty Jacú (*Penelope Marail, leucoptera*); tortoises and monkeys running about at liberty, seemed to be reckoned part of the family. Our wish to possess the rarest of these birds, which our soldier seconded by urgent representations, remained unfulfilled till he caught the animals, and held them to the owner in one hand, and a tempting present in the other. After long hesitation, the Indian seized the present, and thus by a kind of tacit agreement, we remained in possession of our prize.

The Indians who had fled into the woods and into the huts, which, as in all the aldeas, stand at a great distance from each other, made their appearance again, but still continued to look at us only by stealth. An old woman, however, returned to her work, and diligently pounded maize in the hollow stem of a tree; another worked with a piece of wood upon an unfinished hammock; the younger women looked inquisitively from behind the stems of the neighbouring palms; they were either quite naked, or had a piece of white cotton stuff round their waists; some of them wore round their necks glass beads;

others, strings of red and black seeds, (of *Canna glauca*, *Abrus precatorius* and *Ormosia coccinea*, Jacks.) or of monkeys' or ounces' teeth. The little children are carried about by their mothers, fastened to their backs. Even these infants were already ornamented with red and dark blue stripes and spots, particularly in the face, for the tenderness of the mothers exercises itself in this painting* as soon as they awake from sleep. The Indians of this district, however, like most of the tribes in the south of Brazil, generally use only colours that may be taken off again, and the custom of tatooing is of more frequent occurrence among the people on the river of the Amazons.

After we had treated our silent hosts with various presents, which were received without any expression of gratitude, we returned to the fazenda, to fetch our arms and mules. Some of the Indians, tempted by the presents, followed us thither, and were again regaled with brandy and maize-flour. Among them was an old Indian, who was distinguished by a pretty thick beard, accompanied by his wife. The Indian women, we were told, showed more attachment to the negroes than to their own Indian husbands. Runaway negroes, therefore, frequently appear in the woods as the *cicisbei* of the Indian women, and are passionately sought by them. The contrary is the case with the Indian men, who consider the negresses as below their dignity, and despise them. After taking leave with rather more cordiality, we parted from our guests and rode through a thick forest to Guidowald, where we arrived before sunset.

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* The Indians dye black with the fruit of the Genipapo (*Genipa americana*); bluish black with a hitherto nondescript *Cissus: tinctoria, caule articulato subtetragono, foliis ovatis cordatis subquinqueangularibus acutis remote mucronato-serratis utrinque glabriusculis, pedunculis axillaribus solitariis umbelliferis, umbellæ radiis quatuor ad sex dichotomis;* red with the seeds of the Urucú plant (*Bixa Orellana*), or with red ferruginous lithomarge, of which there are layers on the sides of the rivers.

This farm was built by the commandant, close to some of the villages of the Indians who were to be civilised, in order to have them always under his eye. It is situated in a confined, thickly wooded country, on the western declivity of the Serra da Onça, a part of the Serra do Mar. The Rio Xipotó, a river only six fathoms broad, which rises not far from this place, and then joins the Rio da Pomba, flows near the fazenda, to the north, and divides it from the settlement of the Indians on the other side. The predominant kind of rock in this country is gneiss, or gneiss-granite, over which are thick beds of red clay. It is said, indeed, that traces of gold have been found here, yet the streams bring nothing down with them but little fragments of quartz, rock-crystal, and splinters of amethysts. When the wood is felled and cultivated, it produces plentiful crops of maize, mandiocca, beans, and likewise cotton. We had been only a few hours at Guidowald, when we saw a horde of Coropós, who were come to exchange dried ipecacuanha roots at captain Marlier's, for cottons and iron wares. As soon as they heard that strangers were present, they crept, scattered round about the house, and peeped in to see what was passing. This tribe of Coropós consists at present of hardly 300 individuals, who dwell in many small aldeas along the shores of the Rio da Pomba. They are on good terms with the Portuguese, whom they have acknowledged as their masters since 1767, and appear to be the most civilised among the Indians of Minas Geraës. Those whom we saw here were all of a middling stature, with broad shoulders, large jaws, very lean, particularly in the calves, and had a very disagreeable mongol countenance. They were almost entirely naked; some of the women, as soon as they saw us, put on short cotton aprons, which they carried with them wrapped up in palm leaves. In spite of all our endeavours, we found it impossible to examine their language, as well on account of their invincible reserve in our presence, as for want of a skilful interpreter. Among the few words which we drew from them, we were struck by "*Handu*" (in German *Handtuch*), by which they designate a pocket-handkerchief, and "*Ja*" by which they, like the Germans, express an affirmative. After these Indians had disposed of their ipecacuanha, and been fed by the people of the farm, they retired in the evening to the woods.

The nearest huts of the Coroados (*Aldea do Cipriano*) were only a few hundred paces from Guidowald. We visited them in the evening, and found the tent-shaped huts, which were made of palm leaves, quite empty, except here and there an old person. The inhabitants, fearing that we were come to take them away for soldiers, had fled over the Rio Xipotó to their neighbours in the woods. It was not till they had convinced themselves of our peaceable intentions by their spies, that they gradually returned. A young Coroado, whom Captain Marlier had taken into his house and polished a little, was particularly instrumental in gaining us the confidence of these savages, and we were by degrees surrounded by a great number of them, who assembled in Guidowald with and without arms. By several trifling presents, among which painted soldiers made of lead were the most agreeable, we gained their attachment, and our soldier, on his promise to treat them with mandiocca, maize and brandy, received an assurance that they would come on the following day in great numbers, to execute a festive dance in our presence. At the approach of night, they departed unperceived. Some of them slept in the barn, and others in the neighbouring huts, from which they returned early in the morning to make preparations for the festival. These consisted in preparing an intoxicating liquor (*Eivir, Virú, Vinhassa* of the Portuguese) from a decoction of maize. We went, as if by chance, to the place chosen for the meeting, to witness the manner in which they prepared this beverage, and found there several women employed; some were pounding the grain in a hollow trunk of a tree, others put the maize into an unburnt earthen vessel, which was several feet high, narrow below, and broad above, in which it was boiled with a great quantity of water. On our entrance they ran away, but seeing that we looked at them in a friendly manner, they returned to their employment. One old woman, and several young ones, took the coarsely ground and boiled flour out of the pot with their hands, chewed it, and then put it in the pot again. By this mode of treatment, the decoction begins to ferment, and becomes intoxicating.*

While we were looking at these not very inviting operations, one of us saw a small serpent creep out

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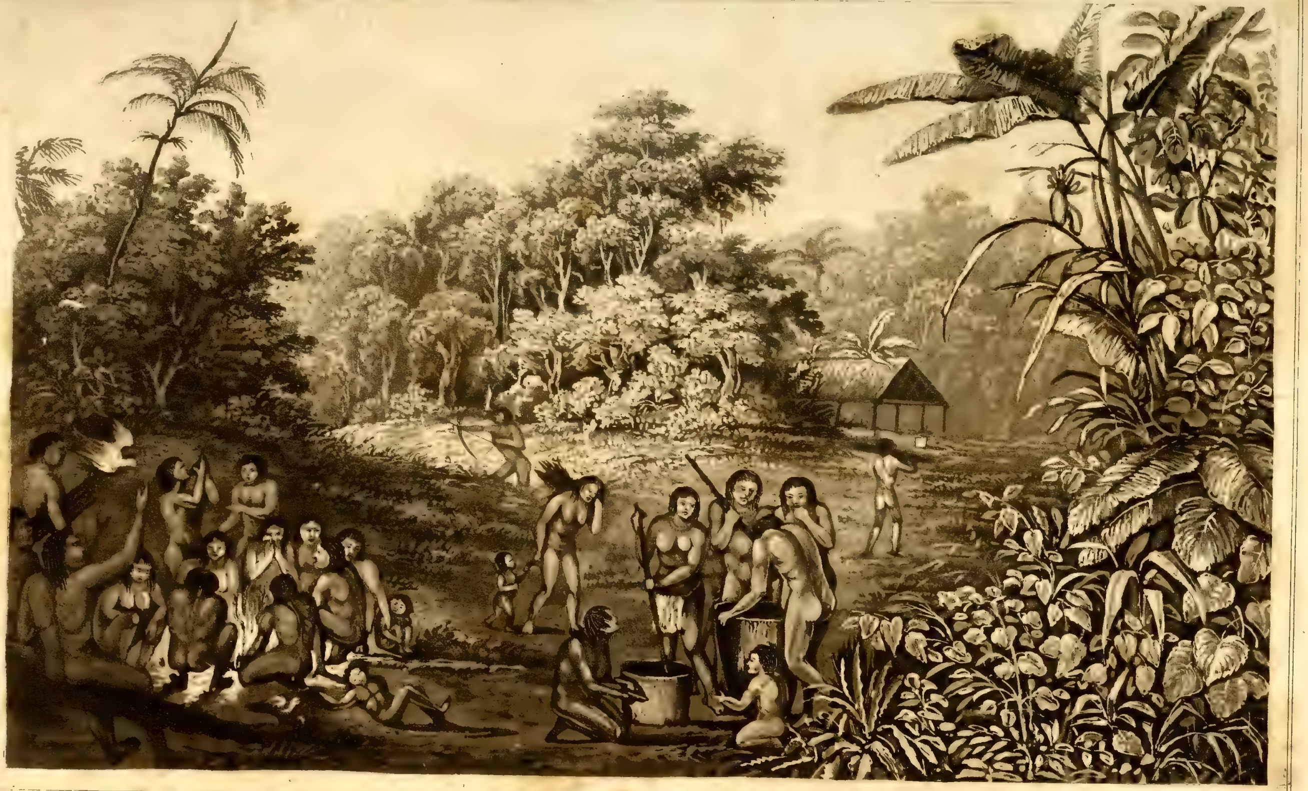
* It is remarkable that this mode of preparing a fermented liquor out of maize, mandiocca flour or bananas, is found among the various Indian tribes of America, and seems peculiar to this race. Wafer found it among the Indians on the isthmus of Darien. (Voy. de Dampier. Amst. 1705, p. 228.) They there call this beverage Chichach-capah; in Potosi, where the Benedictine monk, George Ruiz of Augsburg, according to the manuscript accounts sent to his convent, also found it, Chicha. The same custom likewise prevails in Cayenne, Surinam, and on the coast of the Amazons.



VILLAGE OF THE COROADOS.

London, Published by Longman & Cº 23, March, 1824.

of the ground, which, on account of the thickness of its tail, is here called the two-headed serpent, *Cobra de duas cabeças* (*Cæcilia annulata*, nob.).* The Indians dread it as venomous, and fled, terrified at the naturalist, who had seized it by the head, and playing with it, carried it towards them. Nothing could have inspired the simple people with greater respect for us; from this time they looked upon us with the same awe as they feel for their Pajés (their magicians, priests, and physicians); a feeling which we readily maintained among them.

Towards evening, we heard the sound of the ox-horn echo in the woods. Our guests gradually slipped in at the back door, quite softly; and in a short time, the barn, into which the liquor had been brought, was filled with a great number of Indians. By degrees, those residing at a greater distance arrived in single troops, each with his whole family, and with bag and baggage, as if they were going to migrate; the men who had not yet secreted their bows and arrows in the neighbouring woods, hid them here; the women put down their baskets, took the children on their shoulders, and looked for the drinking cup (*cuja*). Without conversing with each other, each member of the family examined the surrounding company with an unsteady look; the men approached each other, and saluted their neighbours, at most, by pouting out their lips, and a scarcely audible nasal tone. In the middle of the assembly, and nearest to the pot, stood the chief, who, by his strength, cunning, and courage, had obtained some command over them, and had received ~~from Marlier~~ the title of captain. In his right hand he held the maracá, the abovementioned castanet, which they call *Gringcrina* *, and rattled with it, beating time with his right foot. Rather walking than dancing, he advanced slowly, with his body bent forwards, round the pot, towards which his eyes were constantly turned. The dance, the measure of which was in triple time, was accompanied by him with a low monotonous singing, which was more strongly marked when he stamped with his foot. The oftener the song was repeated, the more solemn and animated was the expression of his voice and features. All the rest stood motionless round the pot, stared at him without speaking, and only now and then, when the words of the dancer, which seemed to be extempore, moved them, they broke out into immoderate cries. After this measured circular dance, by which, probably, it was intended to conjure and keep off evil spirits, the leader approached the pot, took from the hand of his neighbour the drinking vessel which he held ready,

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* Spix, Serpent. Bras. tab. xxvi. fig. 1.

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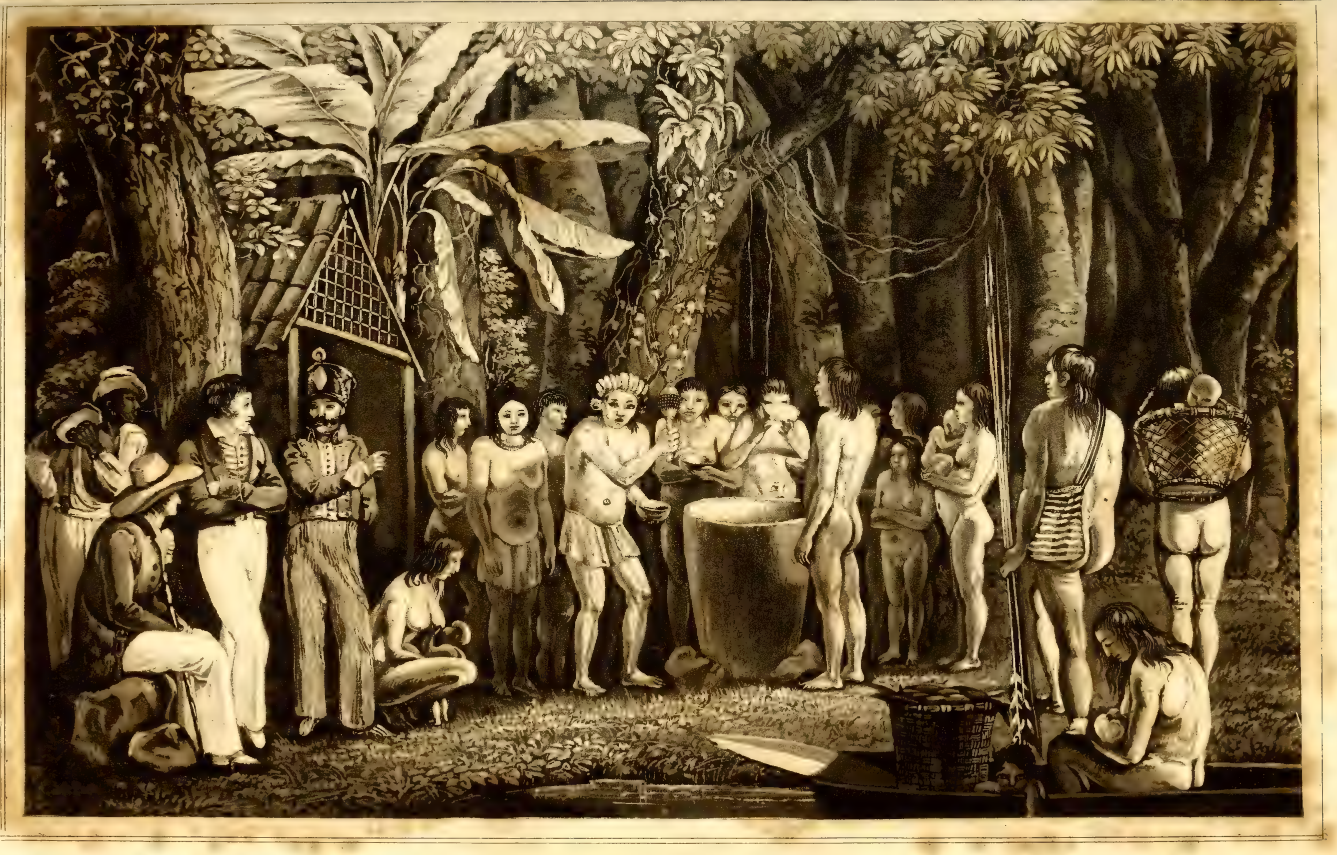
* We did not find any traces among the Indians of the oracles of the Maracá, mentioned in the accounts of earlier travellers.



FESTIVAL OF THE COROADOS.

*London, Published by Longman & C.º 29, March, 1824.*

gravely dipped it into the pot, and took a sip. The rattling of the gringcrina, and the monotonous singing began again; the leader then half emptied the cup, and presented it to the others; every one then helped himself at pleasure out of the pot, and the dance and the monotonous music became general, and more and more noisy the longer the cup went round. We, too, had a full cuja presented to us, and though filled with disgust, we were obliged to follow the advice of our guide to empty it, in order not to give the Indians any reason for distrust. The beverage resembles in taste our malt liquor, and when taken in a large quantity is intoxicating, an effect which was but too manifest towards the end of the feast, by their leaping and noisy singing of "*Hy! ha ha!*" Hopes had been given us that we should see on this occasion the dances of the Coroados; but towards evening, after their stomachs and heads were full, one party slipped away after the other, as if by previous agreement.

The day after our arrival at Guidowald, a horde of Puris had shown themselves, who rove about in this neighbourhood. They crept timidly about the houses, but at length took courage to enter, and after we had made them some little presents, they appeared to acquire confidence, and not to be unwilling to remain with us. It was easy to observe that they were ruder, but therefore less mistrustful than the Coroados, who had been longer subject to the Portuguese. During the drinking feast they had remained concealed in the neighbouring wood; but having been invited by our guide, after it was over, they came, though late in the night, after all the Coroados had retired to their huts, and being encouraged by presents, showed themselves ready to dance. They were quite naked. Some women had drawings resembling serpents on their arms, and other figures of black and red colours on their faces. From native modesty they hid themselves behind the men, or walked stooping. We gave them pins, narrow ribbons, leaden soldiers and horsemen. They tied the latter to strings which they suspended round their necks. On this occasion we had an opportunity of pitying the ignorance of this people. After they had received this present with eager looks, and examined it a long time, they felt the head, mouth, and feet of the horses, and those of the leaden soldiers, and seemed desirous of convincing themselves, by repeated examination and feeling, whether they were animate or inanimate. When they had been made familiar, and treated with plentiful draughts of brandy, of which, like all Indians, they are passionately fond, they began their dance by night, on an open spot not far from the fazenda of Guidowald. If the compact low stature, the brown red colour, the jet black hair hanging down in disorder, the disagreeable form of their broad angular countenances, the small oblique unsteady blinking eyes, and lastly the tripping short light walk of these savages, had excited in us the most sorrowful feelings at the debasement of humanity in them, these were farther increased by the melancholy expression of their festivity in the darkness of the night. The men placed themselves close together in a line, and behind them the women also in a line. The male children, sometimes two or three, took hold of each other and of the fathers round the waist, as the female children did their mothers. In this position, they begin their melancholy "*Hán—jo—há—ha—há.*"*

The song and the dance were repeated several times, and the two rows moved slowly forward in a measured triple time. In the first three steps they put the left foot forward and bent the left side; at the first and third step they stamped with the left foot, and at the second with the right; in the following three steps they advanced the right foot at the first and last, bending on the right side. In this manner they advanced a little alternately in short steps. As soon as the song was concluded, they ran back in disorder as if in flight; first the women with their daughters, and then the men with their sons. After this they placed themselves in the same order as before, and the scene was repeated. A negro who had lived a long time among the

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* It is remarkable that the melodies which Lery noted above 200 years ago among the Indians, in the neighbourhood of Rio de Janeiro, very much resemble those observed by us. (See Lery, Hist. Nav. in Brazil, Geneva, 1594.)

Puris, explained to us the words sung to this dance as a lamentation, the subject of which was that they had attempted to pluck a flower from a tree, but had fallen down. No interpretation of this melancholy scene could have appeared to us more appropriate, than that of the loss of Paradise. The longer the Puris continued their dance, the more lively did they become, and the louder were their voices. They afterwards began to change the melodies for some others, and the dance gradually assumed a different character. The women began to twist their hips, and to shove alternately before and behind, but the men only before; the latter, particularly animated by the singing, leaped out of their places to the bystanders, whom they saluted with a push in the stomach. One of us on this occasion received such a violent shove, that he was obliged to withdraw, half-fainting, from this testimony of joy; upon which our soldier took care to return the push in his stead, as the etiquette required. This dance, the pantomime of which seems much to resemble the Ethiopian Baducca, has perhaps been introduced by the negroes among the Americans.

All the Indians of the tribes of the Puris, Coropos and Coroados, whom we saw here, had an extraordinary resemblance in make and countenance; and their individual features, probably from want of civilisation, have more of the general physiognomy of the race, than is now the case in the other tribes. The Indians are of a short or middle stature; the men from four to five feet high, and the women a little above four; all of a robust broad compact make. It is very seldom that some of a taller and more slender shape are seen among them. The breast is broad; the neck short and thick; the female breast not so pendent as in the negresses; the belly very prominent; the pudenda much smaller than in the negro. The extremities are short; the legs far from full; and the calves, in particular, thin; the arms round and muscular. The foot is narrow behind and very broad before; the great toe parted from the others; the hands are almost always cold, the fingers proportionably thin; the nails, which they constantly bite, are very short. The colour of the skin is a darker or lighter copper, differing a little according to the age, occupation, and health of the individual. Infants are of a yellowish white, like mulattoes; sick persons become of a brownish yellow colour; it is very rare to find among them, albinos, or any that are dark spotted. On the whole, their colour is darker in proportion as they are stronger and more active. On the lower part of the body, and the legs, and arms, the red brown colour sometimes changes to a blacker shade; in the joints it is paler or whitish. The Indian, properly speaking, cannot blush, and the "*Erubescit, salva res est,*" cannot be applied to this unpolished race. It was only after long intercourse with the whites, and after receiving some education, that we perceived in the Indians, a change of colour, expressive of the emotions of the mind. Their skin is very fine, soft, shining, and, when exposed to the sun, inclined to perspiration. Their long, coarse, stiff, and glossy black hair, hangs down thick and in a disorderly manner. The beard of the men is in general thin, but we saw some men with thick beards. The crown of the head and the cheek bones are broad, corresponding with the breadth of the breast. The forehead is low, the temple projecting, narrow above and falling very much back. The back part of the head by no means hangs so low as in the negro, whose skull is, indeed, narrow, and much more oblong than that of the Indian. The countenance is broad and angular, and projects much less than in the negro, but more than in the Calmuck or the European. The ears are small, neatly made, rather turned outwards, not pierced and disfigured by heavy bodies; the eyes, small and dark brown, placed sideways, the inner corner turned towards the nose; the eyebrows, thin and very high in the middle; the nose is short, slightly depressed above, broad below, but not so spread as in the negro; the nostrils, wide, standing very little out; the lips by no means so thick and swollen as in the negro, the upper, not the lower, projects a little, or both are alike; the mouth is smaller and more closed than in the negro. The teeth are very white; the front teeth very broad and even; the eye-teeth project.

In general, the make of the Indian is robust, broad, and short, whereas that of the negro is tall and slender; thus it approaches nearer to that of the other races, especially that of the Chinese and Calmucks, though the latter have lighter complexions and better formed features. We did not meet with any deformed persons or cripples among the Indians, for which reason some persons believe that they put them to death immediately after their birth.

The temperament of the Indian is almost wholly undeveloped, and appears as phlegm. All the powers of the soul, nay, even the more refined pleasures of the senses, seem to be in a state of lethargy. Without reflection on the whole of the creation, or the causes and internal connection of things, they live with their faculties directed only to self-preservation. They scarcely distinguish the past and the future, and hence they never provide for the following day. Strangers to complaisance, gratitude, friendship, humility, ambition, and, in general, to all delicate and noble emotions which adorn human society; obtuse, reserved, sunk in indifference to every thing, the Indian employs nothing but his naturally acute senses, his cunning, and his retentive memory, and that only in war or hunting, his chief occupations. Cold and indolent in his domestic relations, he follows mere animal instinct more than tender attachment; and his love to his wife shows itself only in cruel jealousy, which, with revenge, is the only passion that can rouse his stunted soul from its moody indifference. The men seem to have no sense of modesty; only the naked women, when they are in the presence of strangers, appear to show it, by the manner of their walking. Insensible to the pleasures of the palate, particularly inclined to animal food, the Indian is in general abstemious, following only the calls of nature, without regard to time, and often fasting to suit his convenience; but he drinks to excess of his Vinhassa, or of brandy when he can procure it. Still and docile in the service of the whites; unremittingly persevering in the work assigned him; not to be excited by any treatment to anger, though he may to long cherished revenge; he is born, as the colonists are used to say, only to be commanded. Neither thievish nor deceitful, having no eagerness after any thing that does not relate to the wants of the stomach, he keeps always isolated and separate from the family. However carefully attended by the colonists in sickness, or, in general, loaded with benefits, he feels, during his convalesence, only the greater longing for his wandering life; and, almost incapable of gratitude, flies, even without any particular inducement, back to his gloomy forests. *

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* An Indian of the tribe of the Coroados was brought up by the whites, and so far educated that he was ordained priest, and read mass; but all at once he renounced his new profession, threw aside his habit, and fled naked into the woods to his old way of life.

By no means inclined to conversation, he sleeps during a part of the day; plays, when not occupied in the chase, with his domestic animals; or sits gazing intently without thought, sometimes frightened, as in a dream, by fanciful images. Chained to the present, he hardly ever raises his eyes to the starry firmament. Yet he is actuated by a certain awe of some constellations, as of every thing that indicates a spiritual connection of things. His chief attention, however, is not directed to the sun, but to the moon; according to which he calculates time, and from which he is used to deduce good and evil. As all that is good passes without notice by him, and only what is disagreeable makes an impression on him; he acknowledges no cause of good, or no God, but only an evil principle, which meets him sometimes in the form of a lizard; of a man with stag's feet; of a crocodile, or an ounce; sometimes transforms itself into a swamp, &c., leads him astray, vexes him, brings him into difficulty and danger, and even kills him.

They ascribe a direct intercourse with the demons to their *Pajé*, who is acquainted with many powerful herbs, appears to be at the same time their priest and physician, and contrives to maintain his credit among them by all kinds of conjuring tricks. In extraordinary cases he is applied to for his advice, which he gives after consulting the demons; for which purpose he generally chooses a dark tempestuous night.* Certain animals, for instance, a kind of goat-sucker, and the screaming kinds of vulture, caracarai and caoha, are messengers from the dead to the pajé, and therefore highly respected by every body. The Indian also wears round his neck strings of the eye-teeth of ounces and of monkeys, of certain roots, fruits, shells, and stones, which he thinks will protect him against the attacks of wild beasts and against diseases. The pajé administers many medicines, which are often prepared with magical ceremonies, practises a kind of exorcism by fumigation, and maintains the fear of the Indians for spirits by superstitious customs and narratives; but the misfortunes, sickness, and death of the neighbours are often ascribed to his sorceries, and he then atones for his practices with his life. The pajé, however, has as little influence over the will of the multitude as any other, for they live without any bond of social union, neither under a republican nor a patriarchal form of government. Even family ties are very loose among them: it is very seldom that the head of the family troubles himself about his descendents, and adjusts their disputes. There is no regular precedency between the old and the young; for age appears to enjoy no respect among them. We often saw children and young men behave with the greatest impropriety in the presence of their parents; help themselves to the food before the parents had taken any, occupy the best place at the fire-side, pertly give their opinions, quarrel, &c., without any persons seeming to notice it. The influence of the Portuguese has distinguished the most sensible among them, who are flattered by being called capitâo, and with exercising a kind of supremacy over the rest. When they carry on war, their leader is the best hunter, he who has killed the greatest number of enemies, ounces, &c., and has the greatest share of cunning. At home his commands are not attended to, or individuals follow him at pleasure, because he takes the trouble of thinking for them, or proposes something advantageous, such as a more productive hunting-place, an exchange of goods with the whites, &c. Every body commands at home according to his own pleasure; several families often live in one hut, but quite distinct and independent of each other. They mutually respect their property, have, in general, their meat and drink in common, and seldom have any disputes on this subject; jealousy, however, frequently leads to quarrels, in which the parties concerned fight, without the rest taking any part: for the most part, the poor slavish woman pays dearly for her fault.

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* A Portuguese of the presidio of S. Joâo Baptista told us, that he was once an unobserved witness in a forest, of an assembly of the Coroados, who wished to learn, through their pajé, where they should hunt. The old man went alone into the thicket, speaking in a loud and pathetic tone, falling down several times. Whenever the wind rustled through the trees a piercing whistle was heard, by which the pajé affirmed he was made acquainted with the spot appointed by the demon.

The Indians live in irregular monogamy or polygamy. Each takes as many wives as he has a mind, or as he can and will support, and dismisses them when he pleases, and they then look for another husband; it frequently happens, however, that a man has only one wife after another. Their marriages are entered upon early, and are not very fruitful. We met with some mothers, twenty years of age, who had already four children, but we seldom saw more than four children in a family. There is no solemnity in the celebration of their marriages, the only ceremony being the presentation of game or fruit, by the suitor, to the parents of his bride, by which he tacitly engages to support the wife by the chase. We have never observed any indications of an equivocal connection between fathers and daughters, brothers and sisters; but the vice of sodomy is practised by certain tribes of the Indians.

While the man is solely occupied with the chase, war, and making his arms, all the cares of the domestic concerns fall on the women. They plant and collect the harvest, if this species of cultivation has been introduced among them; look in the woods for Spanish potatoes and fruit for the family, and provide the requisite earthen-ware utensils and basket-work. The women are on the whole the slaves of the men, and in their wandering excursions load themselves with everything necessary, like beasts of burden; nay, even fetch from the forest the game killed by the man. As soon as the woman is evidently pregnant, or has been delivered, the man withdraws. A strict regimen is observed before the birth; the man and the woman refrain for a time from the flesh of certain animals, and live chiefly on fish and fruits. When the moment of birth approaches, the woman goes into the forest, where she is delivered alone, concealed from the light of the moon, generally without any assistance: the navel string is torn, or bitten in two with the teeth. Immediately after her delivery, she goes into the stream, washes herself and the child, and then attends to her household employments as before. Some time after the child and the mother are fumigated, from the mouth of the pajé, with a kind of tobacco (*petum*); on which occasions the neighbours often assemble for the purpose of drinking vinhassa, and of tumultuous dancing. Infants at the breast are carefully protected against the moon, which is said to produce sicknesses. The mother often keeps them at the breast till they are between four and five years of age; the child grows up, loved instinctively by the mother, not at all by the father, and with little care being taken of it. As long as it is unable to walk, it is carried about by the mother on her back, and sleeps between the parents in the hammock; afterwards it takes its own way, lies in the ashes before the fire, or in a hammock of its own, and soon shows itself able to fetch the larvæ of insects and fruits from the forest. Thus left to themselves, the children grow up: the boy soon follows his father to the chase, learns to use the bow and arrow, exercises himself in making strings of the fibres of palm leaves (*tucum**), imitates, by loosely intertwining the cords, all kinds of animals, fish, serpents, &c., and amuses himself with the *bodoque*, a kind of sling, from which they discharge bullets of clay, to kill small birds. The women begin to menstruate early, but sparingly. The period generally continues regularly for three days, but is said to cease before they have attained an advanced age. The males marry at the age of fifteen to eighteen; the girls from ten to twelve. Marriage is not a remarkable period in their life; and these Indians, who do not, like those on the river of the Amazons, celebrate by particular festivals the time when the youths as well as the maidens become marriageable, have but few divisions in their life. Only the birth and death give occasion to particular ceremonies; their festivals are kept without regard to the season of the year. Occasion is principally taken from the ripening of the fruit. It is very common for several families to quit their abodes, and settle where new fruits are ripening, or where the chase is more productive. After a successful campaign, their victories are celebrated by noisy dances and songs; and the Coroados are accustomed to pierce with arrows the limbs of their enemies, the Puris, when any of them fall into their power, and to pass them from hand to hand at their drinking feasts to suck them.

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* Especially of the Tucuma palm (*Astrocaryum vulgare*, Mart.) and others of the same genus. (See Palm. Bras. pl. 58—64.)

The Indians are seldom sick, and generally live to an advanced age, which, however, is very seldom indicated by grey hair. They frequently come to an untimely end by violence or accident. Their most common complaints are inflammations of the eyes and of the bowels; diseases of the liver, diarrhœa, dysentery, and ague, which are chiefly caused by their mode of life in the damp foggy woods. The Portuguese ascribe the inflammations of the eyes to their eating the flesh of the tapir. No trace of syphilis, small-pox, or measles is met with among those Indians who have no intercourse with the Europeans; but when introduced among them, these disorders very rapidly spread, and soon carry them off. Their best remedies are repose and strict regimen. When they are seized by any disease, they make a fire near their hammock, in which they lay themselves down quietly, and pass several days fasting. If the danger increases, the pajé is called in. He tries fumigations, rubbing with certain herbs, or with saliva; kneading, breathing, and spitting on the part affected. They bear the pain of wounds with incredible insensibility; and, when it is necessary, they do not hesitate to lose a large quantity of blood, or to cut off a limb. They are acquainted with venesection, which they perform on the arm, by discharging at the vein, from a small bow, a little arrow headed with a small crystal. They perform scarification with a sharp splinter of reed, or with a pebble ground to a fine edge.

When an Indian dies he is buried in the hut, which, if he was an adult, is abandoned, and another built in its stead. The body, in a squatting attitude, is put in a large pot, or wrapped in bass or old cotton stuff, and placed in the ground, which they then tread hard with their feet, amidst cries and lamentations. They lay the arms of the deceased for a time on his grave, likewise food and game, and repeat the lamentation for the dead twice a day; and either cut their hair very short or let it grow very long, and the women are said to paint their whole bodies black. Long after death, if they accidentally come near the place where one of their people is buried, they celebrate his memory by lamentation. Among the Puris, a kind of funeral discourse is said to be held: the soul of the departed is now, according to their notions, in a pleasant wood, full of sapucaja trees and game, where it is happy in the company of all the deceased. What notion the Indians have of the nature of the soul, cannot possibly be discovered without long intercourse with them, and entering into their way of thinking; but it appeared certain to me, that they believe in its existence after death. Thus, from a sort of fear of spirits, they leave the huts in which they have buried their relations ; give food to the corpse, as it were, to subsist upon by the way; and avoid disturbing the repository of the dead, for fear they should appear to them and torment them.* The general belief in an evil principle, which is announced by a positive term in all the languages of the Indians, may be considered as a proof that they distinguish, however obscurely, between what is spiritual and what is corporeal in nature. We shall have occasion to speak more particularly on this subject in the course of our narrative, and to show that the idea of the metempsychosis generally prevails among them.

Abandoned by tradition, history, or historical documents, the enquirer has nothing left him but to observe the external form of these people, their customs, and especially their language, in order, from those particulars, to determine physically and psychologically their rank among the other races, and the general degree of their civilisation. We, therefore, took great pains in investigating the languages of the tribes living about the presidio. But unfortunately the Indian is so unaccustomed to exercise his intellectual faculties, that it is very difficult to obtain satisfactory information from him. Scarcely has one begun to question him about his language, when he grows impatient, complains of head-ache, and shows that he is unable to bear this exertion. The great number of different languages which we meet with among the American Indians, is extremely remarkable; for they cannot properly be referred as dialects to certain original languages, because they have very few synonymous radical words[*], and in general differ so widely from each other, that it frequently happens that Indians of different tribes do not understand each other, and must converse together by signs, as well as the Europeans who have any intercourse with them. Their languages extend only to the denomination of the objects immediately surrounding them, and often express the predominant quality of things by imitative sounds (*onomatopœia*). They distinguish with great precision the internal and external parts of the body, the various animals and plants: and the affinity of such natural objects to each other is frequently indicated in a very expressive manner in the words themselves; thus, for instance, the Indian names of monkeys and palms were guides to us in examining the genera and species, for almost every species has its particular Indian name. But it would be in vain to seek among them words for the abstract ideas of plant, animal, and the still more abstract notions colour, tone, sex, species, &c., such a generalisation of ideas is found among them only in the frequently used infinitive of the verbs to walk, to eat, to drink, to dance, to see, to hear, &c. They have no conception of the general powers and laws of nature, and therefore cannot express them in words. That the stars are suspended without support in the heavens, and circle in the ether, and that the sun is any thing else than a great fire, has probably never occurred to any Indian; none of them has ever thought that besides the Sun, the Moon, the Great Bear, and Orion, there were other constellations; that the fixed stars are different from the planets, and the latter from their satellites. Still less have they any words for soul, spirit, and the like, or at the most very indefinite and insufficient terms. The word tupán or tupána, which is met with as the name for God among several of the tribes that are a little more civilised, and by which the Coroados designate the sugar-cane, and other nations the pisang fruit, is justly considered by many persons as not originally Indian, but, as well as the idea of God itself in opposition to the demoniacal principle, the devil, was first communicated to the Indians by the missionaries. In general, as they are wholly destitute of all religious notions, and all ideas of revelation, all the terms appropriate to those subjects must be taken from the language of the missionaries, or new made according to the analogy of the Indian language.

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* A Coroado told us that one of his wives, who had died a short time before, had often appeared to him in the night, but constantly avoided his embrace.

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[*] We have collected vocabularies of the following nations, which we shall publish in the appendix of the fourth volume. Coroados, Coropós, Puris, Botocudos, Macuanis, Penhams (Panhems or Panhámis), in *Minas Geraës;* Machacalís, Capoxós, Cataxos, Comanaxós on the frontier of *Porto-Seguro, Bahia*, and *Minas;* Cariris, Sabujás, Camacaëns, Masacarás in *Bahia;* Geicós in *Piauhi*; Apogenicrans, Pimenteiras and Purecamecráns in *Maranhâo;* Múras, Mundrucús, Uainumás, Manaxós, Canna-mirim, Passés, Jurí-Tocana-Tapuüja, Juri-Tabóca-Tapuüja, Culinos, Catuquinas, Uairuçú, Campévas, Marauás, Araquaxús, Cauixánas, Mariatés, Maxurúnas, Tocúnas, Manáos, Barés, Cariays in *Pará* and *Rio Negro;* and lastly wepos sess the vocabularies of the Lingua Geral of Brazil (that of the Tupinambás) and that of the Incas.

Even the denominations of objects that are within the reach of their senses, are sometimes so remote from them, that it is difficult to get them from them. For instance, if we wish to learn from an Indian the word *earth*, we must first point to the water, and then, as a contrast to it, stamp on the ground, in order to give him a striking notion of the meaning of the question. To the question, what the air is called, though we very frequently repeated it, and took the greatest pains to make it intelligible to them, no Indian ever gave us an answer, though they would tell us how the wind was called. For light, they point to the sun by day or to the fire on the hearth. Of substantives, they have, at most, only the names of concrete objects, such as mountain, valley, forest, water, river, &c. It may easily be conceived that they want terms for objects, with which they have been made acquainted by the Portuguese, for instance, king, general, white man, table, chair, hat, handkerchief, glass, clothes, horse, ox, sheep, pig, &c. By degrees they adopt the Portuguese name, which they change more or less. Thus they call the horse (*cavallo*) *cavarrú*, the key (*chave*) *shavi*, the clergyman (*vigario*) *uare*, &c. To the ox they give the name of one of the animals of their own country, the tapir, *tapira*. Their pronouns are quite simple, limited to I, thou, we, mine and thine. Of course there is no such thing as declensions and conjugations, and still less a regular construction of the sentences. They always speak in the infinitive, with, or mostly without, pronouns or substantives. The accent, which is chiefly on the second syllable, the slowness or quickness of pronunciation, certain signs with the hand, the mouth, or other gestures, are necessary to complete the sense of the sentence. If the Indian, for instance, means to say, " I will go into the wood," he says, " *Wood-go*," pushing out his mouth, to indicate the quarter which he intends to visit. In respect to numbers too, their language is very imperfect. They generally count only by the joints of the fingers, consequently only to three. Every greater number they express by the word " *many*." Their calculation of time is equally simple, merely according to the returning season of the ripening of the fruits, or according to the phases of the moon, of which latter, however, they can express in words only the appearance, without any reference to the causes. It is worthy of the particular attention of the philologer, that with this simplicity of language, certain sounds resemble or coincide in a degree with the words of European languages; for instance, the Coropó words *handu* and *ja*, which we have already mentioned, with the German *handtuch* and *ja; Boëman*, wife, with the English *woman;* or the *eivir*, *viru* of the Coroados, with *beer;* the *mangé*, eating, and *nyé*, nose, with the French *manger* and *nez*. The pronunciation of the Indians is mostly guttural, and particularly nasal, for which reason they show greater aptitude for learning Spanish, Portuguese, &c. than German, English, &c.

We visited the aldeas of the Coroados at all hours, and by this means acquired a lively idea of the daily mode of life of these uneducated savages. As soon as the first rays of the sun beam on the hut of the Indian, he awakes, rises immediately, and goes to the door, where he generally spends some time, in rubbing and stretching his limbs, and then goes into the wood for a few minutes. Returning into the hut, he looks for the still live embers of the fire of the day before, or lights it afresh by means of two dry sticks, one of which he sets upon the other, twirling it like a mill till it kindles, and then he adds dry grass or straw. All the male inhabitants then take part in the business; some drag wood out of the forest, others heap up the fire, between several large stones, and all of them then seat themselves around it, in a squatting attitude. Without looking at, or speaking to each other, they often remain for hours together in this position, solely engaged in keeping in the fire, or roasting Spanish potatoes, bananas, ears of maize, &c. in the ashes, for breakfast. A tame monkey, or some other of their numerous domestic animals, with which they play, serves to amuse them. The first employment of the women, on leaving their hammocks, is to paint themselves and their children, on which each goes to her particular domestic occupation, stripping the threads from the palm leaves, manufacturing nets, making earthen vessels, rubbing mandiocca, and pounding the maize, from which they make by fermentation a cooling beverage (*catimboeira*). Others go to their little plantations to fetch maize, mandiocca, and beans, or into the wood to look for wild fruits and roots. When the men have finished their frugal breakfast, they prepare their bows, arrows, slings, lances, &c. The first are cut with stone axes out of the red wood of several siliquose trees, or out of the black wood of some prickly palms (*Brexaüva*) of the species *Astrocaryum*, and polished with the angular bamboo cane, or with iron knives, which they have obtained by barter: the arrows themselves are made of a reed (*Tacuara da Frecha*, *Gräüng* of the Coroados, *Saccharum sagittarum*, Aubl. ?). It is not till the sun is high and the heat considerable, that the Indian delights to bathe himself, and then goes between nine and ten to the chase, generally accompanied by his wife. On these occasions he takes the narrow, almost imperceptible foot-paths, or goes directly across the forest. If the object of his journey is distant, he breaks branches of the shrubs as he goes along, which he leaves hanging, or scatters in the path, in order the more easily to find his way back. The man carries his arms in his right hand, and a short knife, if he has been able to obtain one, tied to a string round his neck; his wife follows empty-handed, or with a bag, braided of strings, containing some provisions. They walk through the thicket with their body bent forwards, in short steps, constantly bending and stooping, and look attentively to all sides. At the least noise, they stand still or hide them selves. If they observe a wild animal, the Indian draws nearer with extreme caution, with his bow bent, and at length discharges the arrow with unerring aim. The woman generally looks for the game and the arrow in the bushes. Their arrows are of different forms, according to the size of the animal, and sometimes barbed; we never saw any poisoned arrows among these Indians. Birds, which they desire to possess as domestic animals, are caught by means of a noose fixed to the end of a very long pole. The Indian steals cautiously up or silently climbs the trees, and holds the noose before the animals so long and so dexterously, that it at length is taken in it. They were not acquainted with the art of angling before the settlement of the Portuguese, till which time they killed fish with arrows or long harpoons. When they have taken some small animals or one large one, their hunting is over for that day, and the woman carries home the game in the bag which is fastened to her forehead by bass (*embira*, generally of *Cecropia peltata*). The cooking of the dinner, as well as keeping in the fire is the business of the men. Pigs are singed; other hairy animals are spitted with the skin and hair on and put to the fire; birds are slightly plucked, and then drawn. The body is spitted on sticks, either whole or in pieces, roasted at the fire or put into the pot with water. If the Indian intends to preserve a part of the flesh, it is laid over the fire in muquém, *i. e.* a kind of wicker-work, and exposed to the heat and smoke, till it becomes as dry as wood. As a particular delicacy, they also roast the entrails, after having drawn them over sticks. Salt is not used in their simple cookery. The Indian prefers roast meat, especially when very fresh, to boiled. The tapir, monkeys, pigs, armadilloes, pacas, and agoutis, are his favourite dishes; but he readily eats coati, deer, birds, turtles, and fish, and in case of need, contents himself with serpents, toads, and larvæ of large insects roasted. They generally dine after the chase, about four o'clock. The inhabitants of the hut, or any neighbour or individual of the same tribe, who happens to be present, takes part in the meal; every one without regard to precedency pulls off a piece of the meat, and squats down with it, at a distance from the fire and apart from the rest, either in a corner of the hut, or under a tree. Above all things, they feed their dogs and hens, which they have received from the colonists and greatly value, and then begin to pull off the flesh, lengthwise, to eat it themselves. Their seasoning is generally a berry of the *Malaguetta*, a variety of the *Capsicum frutescens*. The wife places the vessel of mandiocca flour near the fire, and each takes a handful of it, which he throws into his mouth with the same dexterity as the colonists. When the meal is over, a member of the family fetches a vessel of water from a neighbouring brook, out of which every one drinks at pleasure. The Indian is fond of rocking himself, or sleeping in his hammock immediately after dinner. Besides dinner he has no regular meal, but eats at times fruit, bananas, water-melons, &c., which he cultivates in the vicinity of the aldea, or often steals from the neighbouring plantations of the colonists. If they have a drinking feast, they begin before sunset to drink the vinhassa, and continue with noisy singing and dancing till towards daybreak, after which they sleep in their nets, half intoxicated, till the morning. He who cultivates most maize and has the greatest store of it, is the host for the inhabitants of the neighbouring aldeas, and at every feast they fix the time and place for the following. It is said to have been observed, that the Coroados generally choose Saturday for this festival. It is common, also, to deliberate at these meetings on their quarrels and military expeditions against a neighbouring race, or common hunting parties.

Thus the Indian passes months and years in hunting, war, noisy feasts, and mechanical household employments, in a rude, dull way of life, without being conscious that human nature has any higher vocation. Though he gradually begins to have some kind of intercourse with the masters of the country, he is unacquainted with social virtues. When he is near the colonists he depends more upon their industry than upon his own, and when he is in want, robs their plantations or steals their cattle. The clergy, and the Portuguese, in general, in S. Joâo Baptista, take great pains to propagate Christianity among them; but even the better informed Coroados and Coropos, have hitherto no notion of the essence of Christianity, and at the most, take part in the external ceremonies, and even that not constantly. It is true, that it is nothing uncommon for these people to come to church to be married, or bring their children to be christened; but, they are merely induced by the ceremony, at which they gaze with astonishment, without betraying any emotion of the mind, or reflection. In this they are very different from the negroes, who are very fond of imitating the ceremonies and functions of the clergy. This want of civilisation must unhappily be excused by the character of the people who surround them. For the colonists who have settled in the neighbourhood of the Indians, are partly people who are not able to live in the more populous parts, and whom the solitude of the woods serves as a protection from the pursuits of justice. The Indian, who is constantly oppressed by covetousness and self-interest, lives among the colonists only with fear, hatred, and distrust. The civilisation of the Indian has hitherto been impeded also by the custom of making use of one nation to combat another, as the Coroados, for instance, were employed against the Puris, and by the cruelty of the military detachments, which extended to the Puris the war of extermination which was permitted by the laws against the Botocudos. However, the humane activity and kind treatment adopted by Captain Marlier, have had a very favourable effect, especially on the Coroados. This nation inhabits the country through which the Rio Xipotó flows, and which is called after them Rio Xipotó dos Coroados, and between the two chains of the Serra da Onça and the Serra de S. Geraldo. Their number is estimated at above two thousand, but many have been carried off of late years by diseases, particularly dysentery. Their enemies, the Puris, who, except a small part living on the

Rio Pardo and Rio Paraiba, do not yet recognise the dominion of the Portuguese, are more numerous, and may, probably, amount to about four thousand. They inhabit the eastern declivity of the Serra da Onça, and the forests on the north of the Paraiba, and extend their excursions as far as the Rio Doce, where they sometimes engage in quarrels with the cannibal Botocudos dwelling there.

Though we had gained in a short time the confidence of the Coroados, and could reside among them without fear ; we began to feel a wish to leave this gloomy abode, where we felt in a manner as if we were surrounded by lunatics. Our collections were already enriched with the natural curiosities of the adjacent country, and by the kindness of the director, we also obtained a skeleton of a Coroado lately killed in battle, and which, as an important article, we most carefully concealed from the superstitious savages. As the directors sometimes send Indians to the more populous places, that the account which they give on their return, may have a favourable effect on their countrymen ; the director in the presidio here, proposed that we should take some Indians with us to Villa Rica, as attendants. On the evening of our departure, he therefore brought two young Coroados to our residence, and encouraged them to accompany us by giving them brandy, and by holding out the prospect of returning home with the rank of capitâo, with a handsome dress. It was laughable to see what an impression, a brilliant uniform made upon these simple people. One of them was dressed up in it, with a gold-laced hat, and the looking-glass held before him. Astonished and proud he gazed sometimes on himself, and sometimes on his image, and felt the new coat and the looking-glass on all sides; though he could not explain this magic image, a feeling of complacency and pride seemed to triumph over all his doubts. From this moment his resolution was taken, and he was happy to accompany us. He soon grew used to us, remained with us a great part of the journey, and received from us, for his attachment, the name of Custodio.

On the 17th of April, we left Guidowald; the fear that the Indians would obtain information of the skeleton which we had taken with us, and make a hostile attack upon us, accelerated our resolution and our steps, to return from these dark forests into the cheerful campos. We had already proceeded a good distance from the Presidio de S. Joâo Baptista, when we suddenly met in the thickest part of the wood, a body of thirty or forty Indians, who were marching in single troops, men, women, and children, with bag and baggage, in order, as we learnt in the sequel, to attend a drinking feast, a few leagues to the south. Scarcely had they perceived us when they immediately halted, looked at us irresolutely, and then hid themselves singly behind trees, the men with their bows and arrows in their hands. Alarmed at this sudden appearance, we at first feared that an attack was intended; but as they hesitated to attack us, we laid our arms on the ground, and went towards them with friendly countenances, making signs to them, that we had laid down our arms, and would do them no harm. As soon as we got up to the nearest of the first troop, we clapped him on the shoulder, again pointed to our fowling pieces lying at a distance, showed them our plants and animals, and gave them to understand that these were our only occupation, and they might therefore quietly pursue their way.

One of them, who had already seen us at the fazenda of Guidowald, became, on this, more familiar, and appeared to confirm to his comrades, in a few words, the truth of our statement, and so we parted on good terms. We met with another adventure before we reached the Serra de S. Geraldo, or Serra de S. Jozé. In a thick coppice, we passed an Indian hut, from which an old naked woman, who, as Custodio afterwards told us, was his relation, spoke a few words to him. She asked him with concern, whither he was going, and whether he was carried away by force; but when he joyfully answered, that he was going to see the great capitâo, and would soon return himself as capitâo, she smiled, and took leave of him.

After this we rapidly crossed the mountain, and proceeded in the direction of N.W. to the little *Arraial* de S. Jozé Barboza, where we intended to pass the night. On the following day, the road still led through thick forests to Sitio, a considerable sugar manufactory, where they chiefly make loaves of brown sugar (*rapadura*), which is generally taken in the interior with water. In the little village of Santa Rita we had at length passed through every danger, and could congratulate ourselves on travelling again in pleasant campos, and among more human countenances. Near Oiro Fino, we turned into the road, which we had taken on our journey hither, and, on the 21st of April, returned safely, by way of Mariana, to Villa Rica.

## NOTE TO CHAPTER II.

The first bishopric in Brazil was founded at Bahia in the year 1522, and raised to the rank of an archbishopric in the year 1667. The bishoprics of Rio de Janeiro and Pernambuco, which were founded at a later period, as also those of Angola and S. Thomé, in Africa, were placed under it as suffragans. The bishopric of Maranhâo, from which, under John V., the bishopric of Pará was separated and made independent of it, remained under the archbishopric of Lisbon, on account of the difficulty of the navigation between Maranhâo and Bahia. In the year 1744 the new bishoprics of Mariana and S. Paulo, and the two extensive prelacies of Goyaz and Matto-grosso, were detached from the diocese of Rio de Janeiro.

## CHAPTER III.

### EXCURSIONS IN THE ENVIRONS OF VILLA RICA.

The Itacolumi is the highest summit of the Serra do Oiro Preto, the southern declivities of which form, with the Morro de Villa Rica, the narrow valley in which the city is situated. To ascend this mountain, we crossed the Ribeirâo do Oiro Preto, at eight o'clock in the morning, and reached the summit at noon. The road leads upwards, through pleasant green slopes, and sometimes through low woods. The level part of the mountain gradually extended, and we were on a wide, gently rising plain, at the back of which is the last summit of the mountain. The slope is covered with campos, and scattered bushes, and here and there the ravines and hollows are occupied by a thick forest of low trees, with very luxuriant foliage. These little woods, which in this part of the country are called *Capoès* (corrupted from the word *Caapodâo*, island, in the Lingua Geral), as it were, wood islands, are a peculiar feature in the scenery of the campos, and for the most part consist of plants, which are found only in them.* Towards the summit, immense masses of rock, and rifts of the whitish quartz-slate stand out between the grassy spots. A prodigious block is particularly remarkable, which has separated from the summit, and hangs below it rather obliquely, and is plainly seen from Villa Rica.†

About noon we were at the foot of the highest conical summit, which is partly covered with grass and low bushes, and partly showing a bare wall of rock; we left the mules on which we had been able to ride conveniently so far, to graze in the barren campos, and ascended the last part of the mountain. From the summit we enjoyed a grand and extensive prospect over all the surrounding mountain chains, which are commanded by the colossal Itacolumi, the highest mountain of the comarca of Oiro Preto, as the nucleus of a great system of mountains. The steep iron-stone mountain of Itaubira, with its two picos‡, one of which resembles an enormous tower; the mountain of Coche d'Agoa, those of Lavras Novas, the Serra do Carassa, and many others lay extended at our feet They appeared all of the same character as Itacolumi, namely, as long extending ridges with flat tops, and with verdant summits, here and there steep, without any considerable bare walls of rock.

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* To these belong several kinds of the species Laurus, Vochisia, Annona Uvaria, Xylopia, Myrtus, Inga, Weimannia, Styrax, Bauhinia, Coccoloba, Chiococca, Amajovea, Chomelia, Sapium, Gymnanthes, Spixia entwined with Paullinias and Echites. Botanising is often impossible here, on account of the swampy soil, or dangerous from the resort of large serpents.

† This rock has given rise to the Indian name of Ita (stone), and Columi (little son), as if it were the son of the principal summit.

‡ According to Von Eschwege's measurement, this mountain is 4895 feet above the surface of the sea.

The sky was cloudy: the barometer, at one o'clock in the afternoon, was at 23, 6.75, the thermometer 16° R.; whereas in Villa Rica the barometer was 25, 2, and the thermometer 22° R.*

At this elevation profound silence and repose reigned all around, uninterrupted by the motion or cry of a bird; even the noisy grasshoppers do not penetrate here with their monotonous notes. A simple modest vegetation enjoys the Alpine coolness of this tract.† The mountain itself consists of white quartz-slate, which is traversed with more or less numerous scales of mica. Towards the centre of the mountain, the rock becomes of a coarser grain. The mica-slate, containing specular iron, and its concomitant, the pure mica, stratified in large tables, form beds in the lower parts of the mountain, which run in the direction from E. to W. in hour 7 of the miner's compass. At the foot of the mountain, for instance, at the gunpowder manufactory, the iron-stone stratum appears, in which there are nests of iron pyrites and crystals of ironglance. Lastly, a brown thin foliated clay-slate forms the solid basis of this mountain. Several rivulets, which flow into the Ribeirâo do Oiro Preto, descend from the ridge of the mountain. In a retired valley there is a spring containing oxyde of iron, which, from its yellow

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* According to the simple formula of De Luc, this gives for the top of Itacolumi an elevation of 4618, and for Villa Rica of 2948 Paris feet. Mr. Von Eschwege assigns to Itacolumi a height of 5710 feet English (5355 Paris), and to the palace of Villa Rica, which is certainly much more elevated than our dwelling, 3760 English (3526.88 Paris) feet.

† Of the plants growing on Itacolumi we will mention the following: Barbacenia tricolor, bicolor, tomentosa, luzulæfolia, ensifolia; Vellosia abietina, taxifolia; Psyllocarpus ericoides, laricoides (Mart. Gen. Nov. Bras. pl. 28.), thymbroides, asparagoides; Galium brasiliense; Morinda obtusifolia; Declieuxia rubioides, lysimachioides, cordigera, saturejoides, vincoides, nob.; Coccocypsilum pilosum; Oxypetalum foliosum, erectum, strictum; Ditassa mucronata (Ib. pl. 31.), retusa,

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obcordata, linearis; Lisianthus pulcherrimus, inflatus, pendulus nob., fistulosus Lam., cœrulescens Aubl.; Exacum brachiatum; Phyllanthus erythroxyloides, fastigiatus; Cnemidostachys myrtilloides, glandulosa, salicifolia, linearis, glauca nob.; Sauvagesia erecta, L.; Lavradia montana (Ib. pl. 23.); Plectanthera floribunda (Ib. pl. 26.); Esterhazia montana, alpestris, campestris; Angelonia lobelioides nob., salicariæfolia Humb.; Gloxinia viridiflora; Gessneria tuberosa nob.; Glautheria odorata Humb., alpina, eriophylla; Gaylussacia acicularis; Vitis Idæa, crenulata, nitida, reticulata; Escalonia bicolor, glandulosa; Vochisia elliptica, rotundifolia nob.; Trigonia sericea, Humb.; Abatia tomentosa; Hirtella ciliata nob., glandulosa Spreng.; Lühea paniculata, nob.; Clusia flava, L.; Ternströmia clusiæfolia, Humb.; Davilla brasiliana, D. C.

colour, united with perfect transparency, has obtained the name of Corrego do Vinho, or wine-spring.

Before we left Europe our attention had been directed to the chromate of lead, which was said to be found in Brazil. On enquiry, we learnt that it was to be met with near Congonhas do Campo. As this fossil has hitherto been observed only here and at Beresof, on the Ural, in Siberia, we considered it important to investigate the manner of its occurrence on the spot. We chose the road by way of Capâo, where we had an opportunity of confirming our previous researches into the formation of the topazes there. From this place we rode westwards over a beautiful hilly tract of campos, richly diversified, but destitute of inhabitants, for we met with only two small fazendas, Laranjal and Pires. Thick beds of mica-slate, containing iron-glance, or the crust of the iron-stone flötz, stand out here as the upper formation, resting on clay or quartz-slate. In the two former there is an extraordinary number of octahedrons of magnetic iron-stone and crystals of iron-pyrites, which are transformed into iron-stone; more recent iron-pyrites, and large tables of ironglance lie scattered on the road. At noon we reached the iron-foundry of De Prata, which is five leagues to the west of Capâo. This establishment, founded by our countryman Von Eschwege, under the auspices of the late governor-general, Conde de Palma, on the plan of a society of shareholders, produces annually about a thousand arrobas of forged iron, the greater part of which is manufactured on the spot. The ore is a rich ironglance, but particularly magnetic iron-stone, the very thick beds of which stand out near the foundry.

The director of the manufactory accompanied us on the following day to the mine of Senhor Romualdo Jozé Monteiro de Barros, which was situated a league and a half to the south-south-east, and was the object of our journey. Here we were received by the proprietor, a colonel of the militia, with a liberal hospitality peculiar to the Mineiros. After dinner, he conducted us to his mine, the formation of which is not that of the mica-slate containing ironglance, or that of the tapanhoacanga, but a cream-coloured clay-slate, traversed by auriferous veins of quartz. The principal vein extends from north to south, and is from one to twelve inches thick. The metal is disseminated in the friable quartz, which is covered on its rifts with an earthy coat containing manganese, in such small particles that they frequently cannot be distinguished by the naked eye. The vein is in some places uncommonly rich in this metal. From a piece of quartz of the size of a fist, which was broken off with the hammer, a negro obtained by washing, in our presence, a visible quantity of very fine gold dust, worth a hundred rees. The clay-slate too, which is frequently coated on the rifts by black dendritic manganese, contains gold; but in this mine they work only the quartz veins (*veas, filoës*). To uncover the latter, the owner has had the mountain washed away in many places by means of a strong current of water, and thereby made so many steep ravines in the already soft rock, that he can scarcely continue to work the veins farther, without danger of their falling in. It would have been more advisable to commence a regular work, with adits and shafts lined with planks. The gold obtained here is generally two-and-twenty carats fine.

In the evening we visited the mine called Cujabeira, now abandoned, where the chromate of lead was discovered. It is in a field scarcely a league from the fazenda of Senhor Monteiro, in a low hill of clay, which, on the whole, runs from N.N.W. to S.S.E. We in vain searched among the *débris* to find a few tolerably large pieces of this scarce fossil, till the colonel conducted us to a small adit which he had just opened. Here we had the pleasure of observing the red lead-ore in a vein of friable greyish white granular quartz, among pretty much disintegrated, white, scaly lithomarge, of the thickness of a few inches to a foot, running from north to south. The quartz, which forms the matrix, is here and there of a lemon colour, and traversed with brown oxyde of iron. The crystals of the chromate of lead are small and very small, and seldom show well-defined terminal planes, They form rather oblique four-sided prisms, with sharp beviled ends, and agree in the chief characteristics with the Siberian. The more precise determinations of the crystals, among which there are probably most of the varieties described by Hauy, must be reserved for a future occasion. In the vicinity of the red crystals, there is not unfrequently an earthy coat of yellowish green lead-ore, which we oftener found in reniform pieces on the *débris* among numerous magnetic iron-stone octahedrons. As the fossil is so very scarce, we thought it would be interesting to collect a great number of specimens, in which we succeeded during our two days' stay, but with much difficulty on account of the crumbly nature of the quartz, and of the scaly lithomarge.

Senhor Monteiro wished very much to take us to Capella de Mattozinhos near Congonhas do Campo, which the Mineiros admire as a masterpiece of architecture; but he at length gave credit to our assurance, that we had seen similar works in Europe, and the following morning at daybreak, led us back into the road to Villa Rica, where we with regret took leave of this hospitable man. We then proceeded to Chapada, which we had already visited on our journey hither from S. Joâo d'El Rey, and hoped to reach our old quarters at Lana, but night overtaking us on the road, we solicited admission at a neighbouring fazenda, where, though the door of the court-yard was already shut, and our knocking disturbed the family in their sleep, we were received and treated, because we were strangers, with the most cordial hospitality. On the following day, we crossed the high and steep Serra de Deos te Livre, or da Solidade. The masses of greyish and greenish white mica, which are here incumbent on the quartz-slate, are of very fine texture, and decomposed by the rain and atmosphere into a very fine powder, which, as a high wind just then arose, involved the adjacent country in dust. We travelled at the bottom of the valley between this mountain and the branches of the Congonhas do Campo, where the iron-stone flötz, or what is called the iron mica-slate appears here and there over the quartz-slate, reached the Morro de Gravier, adorned with grotesque lily trees (*Vellosia*), and at length returned to Villa Rica.

Some days after this excursion, we set out for the village of Antonio Pereira, which lay five leagues to the north, in order to examine the condition of our mules, most of which had been sent thither to pasture during our stay at Villa Rica. After we had passed the stony ridge of the Morro de Villa Rica, where we saw lily trees and beautifully coloured lisianthus on the road, we passed, a league from the city, over the Rio das Velhas, which is here still an inconsiderable stream, and continuing on the whole in a north-west course, flows by Sabará, and joins, at S. Româo, the Rio de

S. Francisco. Much gold twenty-two carats fine was formerly obtained by washing the iron-stone flötz on the land belonging to a large fazenda on the road, built in the style of a cloister. In general, the whole Serra de Antonio Pereira agrees in its component parts, and the nature of its strata with the auriferous Morro de Villa Rica; for it likewise consists of white quartz-slate with strata of mica-slate containing ironglance, and a far-spread mantle of stratified red iron-stone.

Among the plants which grow on this mountain*, and seem peculiar to the iron-stone flötz formation, we observed in great abundance the soft grass (*Capim mellado* †) which is common in Minas Geraës, and is a favourite food of the horses and mules on account of its tenderness, and the oily down which covers it, but makes them short-winded if taken for too great a length of time. The gold mines of Antonio Pereira were very productive a few years ago; thus one Mineiro with a shaft sixty feet deep, gained in two months 24,000 crusadoes; but as the work was undertaken without science or care, the earth suddenly fell in and buried fourteen workmen, and the water getting in, made it impossible to work the mine any farther. In the pleasant valley not far from the village, a very compact light grey calcareous stone stands out in large masses, and extends pretty far up the mountain. In this, probably primitive, limestone, which sometimes shows on its rifts a mammillated coating of sulphur, there is a cavern with stalactites, which has been transformed into a Capella de Nossa Senhora da Lapa. *

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* Laurus erythropus; Bauhinia ferruginea; Abatia tomentosa, nob.; Byrsonima nitidissima, Humb.; Banisteria versicolor; Vanillosma firmum; Lisianthus pulcherrimus; Phyllanthus robustus; Mikania glauca, nob.; several rhexiæ, palicureæ, and gualteriæ.

† Tristegis glutinosa, Nees. (Agrostis glutinosa, Fisch.; Suardia picta, Schrank.)

North-west of Antonio Pereira, Mr. Eschwege has established a small iron-foundry, which is directed by a German overseer. This establishment manufactures the mica-slate containing ironglance, which here forms considerable strata on and in the white quartz-slate, and of which large blocks lie scattered here and there on the surface. It is not unfrequently covered with stratified red iron-stone. The rock is very rich, yielding from sixty to eighty per cent., and this place could supply all Minas with iron; but as many landholders prepare what iron they require for their own use, and there are besides several small furnaces in different parts of the capitania, at times, also, large importations from Rio de Janeiro, the daily produce is limited to one or two arrobas, which are immediately manufactured into hatchets, axes, knife-blades, horseshoes, nails, and pickaxes. The arroba of un-

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* See Note 1. page 291.

wrought iron costs here and in the neighbourhood, 1800 rees. Our friend Von Eschwege, frequently complained of the difficulties of establishing a manufactory in this country, and assigned as a chief cause, the aversion of the lower classes to follow any fixed employment.

From the iron-foundry, we went to the Arraial de Bento Rodriguez, lying about two leagues and a half to the N.E. The country is mountainous, and the surface, for the most part covered with the formation of the auriferous stratified iron-stone, announced the industry of the gold-washers by numerous trenches and open mines. We were the more surprised to see in this village, as in many others, but few traces of the comfort of the inhabitants. The houses are ruinous, miserable withinside, and the inhabitants look very wretched. Everything indicates that the prosperity of this district is past, and nothing remains but scattered fragments of its former opulence. The sun had already set, and the darkness of the tropical night enveloped us, when we had to pass a very rough and therefore dangerous ground, to reach the large village of Inficionado, where we proposed staying for the night. We found a great number of the inhabitants assembled under the illuminated images of the Virgin to say their Ave. This custom of the mother country is practised every evening in Brazil with zeal, and an almost theatrical solemnity; the mulattoes, who in general are very voluble in their speech, and have good lungs, take upon them the office of the clerk or priest. Inficionado is the birth-place of Father Duraô, author of the poem Caramurú, which celebrates the discovery of Brazil. *

At daybreak the following morning, we left this place, which is gradually impoverished as the mines are neglected, and set out for the Serra do Caraça. We were informed by a stone-merchant, whom we had known at Rio de Janeiro, and who, as we afterwards learnt, was hastening from the diamond district pursued by police officers, that it was advisable to pass the night at the house of the guarda môr, Innocenzio, on the north-western declivity of the mountain, and to ascend it on the following day. The mountains of the Serra do Caraça lay to our left; it extends to the length of nearly three leagues, in the direction of north to south, and towers above all its neighbours with its bold rugged outlines. We went round several of its steep declivities, and at length got sight of the fazenda of the guarda môr, which stands on a projection, resembling at a distance a magnificent fort, and commands all the adjacent country. When we arrived in the spacious court-yard, the master of the house cordially bid us welcome; and, after he had shown us the beautiful prospect

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* Caramurú, poema epico do descubrimento da Bahia, composta por Fr. José de S. Rita Duraô. Lisboa, 1781. 8vo.

of the Arraial de Catas Altas, which lay at our feet, of the Serra de Itaberava, which is rich in amethysts, and of the distant Itambé, conducted us to an entrance-hall, the walls of which were hung with geographical and historical maps. A globe and several books informed us that the owner amused himself with scientific pursuits (the guarda môres are the surveyors and appraisers of the estates, particularly the mines).

There was a solemnity in the manner of our host, a venerable old man, which involuntarily reminded us of the quakers. In fact, he belonged to the sect of the Sebastianistas, who expect the return of King Don Sebastian, who was slain in the battle of Alcazar against the Moors, and with him the most glorious epoch of the Portuguese monarchy. The followers of this sect, who are distinguished by their industry, frugality, and benevolence, are more numerous in Brazil, and particularly in Minas Geraës, than even in the mother country. Senhor Innocenzio, endeavoured to convince us out of a great number of manuscript prophecies, of the approaching happiness of Brazil; we assured him, without, however, hoping the return of Don Sebastian, that Brazil was advancing to the period of its greatest prosperity.

After the frugal meal, the guarda môr conducted us to his lavra, immediately behind his house. This gold mine has been worked for these eighty years, formerly by a great number of negroes, but now only by eighty. On the white quartz-slate, which forms the main part of the whole mountain, there is here a thick layer of ferruginous, or iron mica-slate, which is bare to the height of thirty or forty fathoms, resembling steep steel-grey walls. This rock consists of a fine-grained, smoky grey quartz, and steel-grey, small-grained ironglance, which supplies the place of the common mica. It is generally thin, seldom in layers a foot thick, often when the proportion of quartz is considerable, almost crumbling, and coated at the rifts, with yellowish brown iron-ochre; here and there a large foliated massive ironglance, generally undulating, occurs in it. The iron mica-slate runs in hour 22 of the miner's compass, from north to south, and dips in angles of from 50° to 80° to the east. It may contain from 50 to 70 per cent. of iron, according as it is more or less separated from the quartz. We observe transitions into pure ironglance, but still more frequently into quartz-slate, which constitutes the chief formation, and to which it is only subordinate as a thick layer. Towards the summits of the mountain, this formation is covered by the iron-stone flötz, which we have already described at Villa Rica, in which large pieces of quartz are embedded. The greatest and richest pieces of iron-ore, which cannot be broken in the gold-washing, are carried by the negroes on their heads, out of the mine, and piled up at the foot of the mountain, near the house, in a high wall, which would be sufficient to employ the greatest smelting house for several years. The gold is of a proper gold-yellow colour, and occurs between the iron mica-slate, in fine grains, which show many single planes of crystallisation, and are sometimes so grown together, that they form long, thin, reed-like rows, touching one another, several inches long. In the stratified iron-stone, and in the quartz, gold is likewise met with, but still more on the rifts of the massive ironglance. In the rainy season, an impetuous stream falls from the upper part of the mountain, into the hindermost ravine, which forms the bed of the iron mica-slate, brings with it the particles of gold separated from the stratified iron-stone on the top of the mountain, and likewise washes the deposit of the crumbling iron mica-slate. Part of it is conducted into a pond below the fazenda, and the precious metal washed out with the bowl. The gold here acquires a very bright yellow colour in smelting, probably from the considerable mixture of manganese, arsenic, and antimony, perhaps, too, of a little platina; at least, our host affirmed that he had already obtained this metal.*

After we had attended a solemn mass, in the beautiful private chapel of the worthy Sebastianista, in the company of his neighbours, he sent a mulatto, well-acquainted with the way, to attend us to the Hospicio da Mâi dos Homens, in the upper part of the mountain, and took leave of us with cordial benedictions. The road led up the west side of the mountain, over grassy slopes, intersected by numerous trenches. The landscape gradually became more bare and rugged; numerous plants of singular forms grew on the lonely, rocky path; gloomy wooded hills and ravines alternated with smiling pastures; or dazzling white rocks, and streams rushing between thick enclosures of ferns, *Aroideæ*, and *Orchideæ*, invited to repose. At length, proceeding by a narrow path through thick low wood, we came to an elevated valley, closed like an amphitheatre, in which the cheerful building of the Hospicio struck our view. All nature here breathes content, and an inexpressible feeling of tranquillity and calm pleasure fills the mind of the traveller.

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* See Note 2. page 292.

We ascended a flight of broad stone steps to the convent, which, even at a distance, seems to announce, through the crown of waving palms which overshadow it, that here is a secure retreat for the unhappy, a peaceful asylum for him who is weary of life. No place on earth is more calculated to disengage the mind from worldly inclinations and cares, than this secluded abode of pious contemplation. The traveller more willingly indulges in the agreeable impressions which the place excites, because they are very rare in a country so thinly peopled, and where the arts are in so low a state. The Hospicio de Nossa Senhora Mâi dos Homens stands as the triumph of the persevering piety of a single man, who, in 1771, commenced the building with charitable donations, and, by degrees, adorned the church with paintings, carving, gold, silver, and precious stones. The venerable hermit, a native of Portugal, and above a century old, was still alive. He was much rejoiced at having been visited in this solitude by Europeans. As he was no longer able to direct the assistance of other brethren, none of whom were here at the time, it was confided to an administrator sent by the government. They received us with much cordiality, and we were surprised to find clean beds, table-linen, and other conveniences in abundance. The establishment has already acquired some property by pious donations; eight negro slaves cultivate the land in the vicinity, or attend to the horned cattle which thrive here admirably. The butter made here excels in taste and sweetness that of the Swiss Alps. In the neighbourhood of the convent there are several kinds of European fruit-trees, such as cherries, quinces, apples, chestnuts, and olives; but these last, notwithstanding the cool and elevated situation of the places, bear no fruit.

The treasures of this beautiful mountain valley keep the naturalist in a continued transport. The forms of the plants here are incredibly diversified and beautiful. The members of the families of the melastoma, the crotons, malpighias, the cornflowers, and thick-stemmed large-flowering lilies are particularly numerous, and characteristic of this and other quartz-slate rocks. In the swampy pastures, and on the grassy margin of a deep pool enclosed by rich-flowering shrubs, there are the strangest forms of hydroctylons, droseras, andromedas, gaultherias, utricularias, sauvagesias, ericaulons, &c. On the first day, we gathered near a hundred kinds of plants before unknown to us; and though mountainous districts are always poor in animals, our collection of the species cerambyx, buprestis, particularly the *Buprestis tricolor*, *semistriatus* nob., and humming-birds of the most various kinds, was very ample. In the evening, when returning from our excursions, a new pleasure awaited us, when, from the terrace before the convent, we saw the bright disk of the moon rise above the mountain, or the serene sky gradually illuminated with the constellations of the southern firmament. The call of the vesper bell in the romantically beautiful mountain valley awakened in our souls a mixture of the most soothing sensations, uniting the recollection of our distant country with the enjoyment of the beauties which surrounded us.

We reluctantly quitted this paradise after a stay of two days, and ascended the chief peak of the mountain in order to descend on the east side to Inficionado. This road, too, offered, at every step, new objects and new attractions. We proceeded by the side of a transparent stream through a cool side valley enclosed by steep rocks, till we came to an opening between them, and reached an elevated terrace covered with vellosia, which afforded us a last view of the lonely monastery. From this place the road became steeper as we descended, so that we did not think it prudent to remain on our mules. The taller trees and shrubs gradually ceased, and we had to make our way with much difficulty through low bushes. In the white quartz-slate, large spots of which were often bare, we observed narrow veins and fragments of a compact shining quartz, in which kyanite and rhaëticite occur, and here and there casual pieces of common shorl. *

On several parts of the mountain we heard the noise of subterraneous waters, which penetrate between the crevices and clefts of the rock, and at last issue out below, in cool streams. From the top of the mountain, we saw the rocky summit of the Itacolumi in the S. E.; and in the E. and N. E., several low mountain chains, through which the Rio Percicaba and the Rio de S. Barbara flow to join the Rio Doce. On the eastern side, the declivity of the Serra do Caraça is so steep, and the narrow path covered with so many loose fragments of rock, that the descent into the valley is extremely dangerous. We at length happily reached Inficio-

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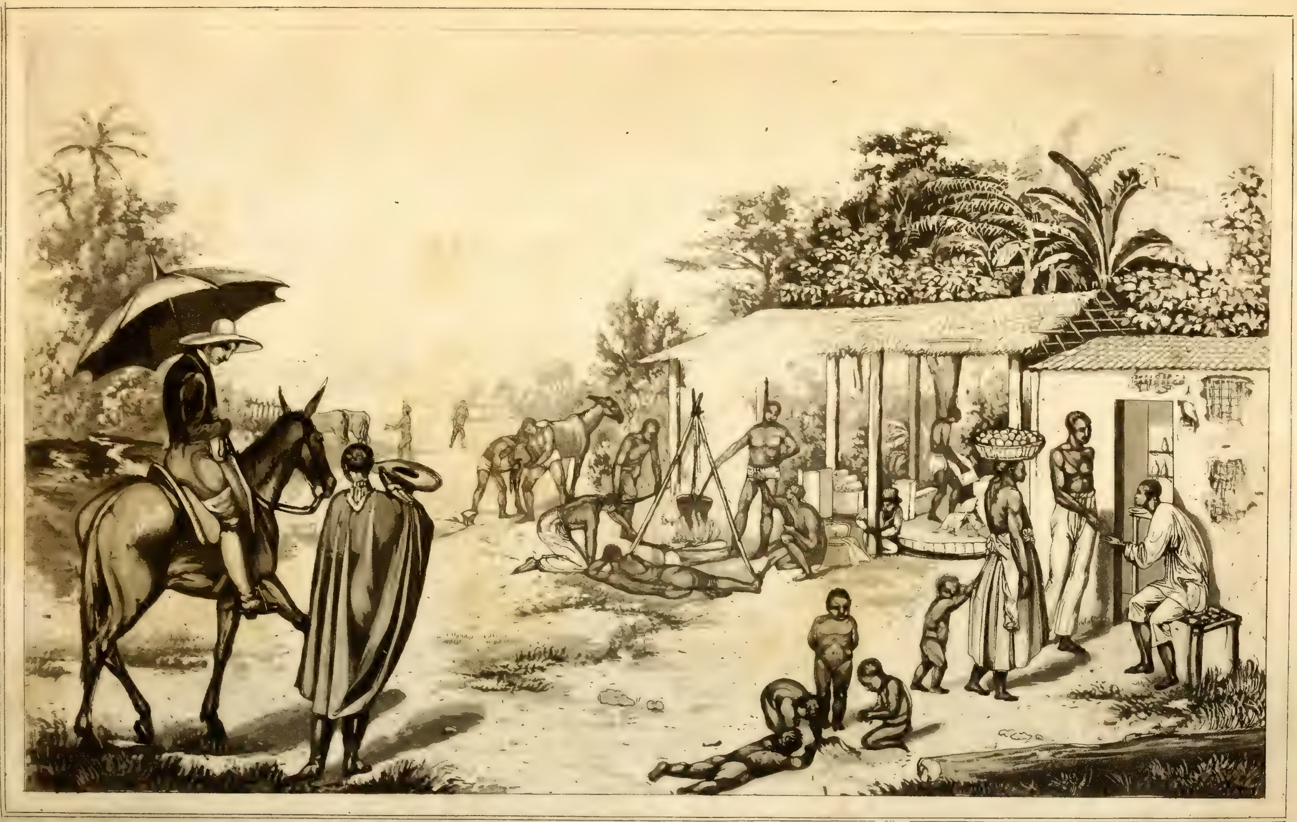
* See Note 3. page 293.



RANCHO NEAR THE SERRA DO CARAÇA.

nado, where our people were impatiently expecting us. Immediately at the foot of the Serra do Caraça (in Cata Preta), we visited several other mines, formerly very rich, in which the metal obtained from the stones by stamping, is remarkable for its grey yellow colour, and when properly smelted, may be purified to the fineness of three-and-twenty carats. The same evening, we set out for the Arraial de Bento Rodriguez, and passed the night in a rancho, where we again enjoyed a prospect of the beautiful Caraças mountain. The rancho was full of Mineiros from Minas Novas, who were going to Rio with cotton, and gave us a very lively image of the wandering caravans. Gold is everywhere found about Bento Rodriguez in red clay, which is incumbent on quartz-slate. As the mode of working these mines did not differ from those we had already seen, we did not delay to take the main road which leads to the city of Mariana, three leagues to the south of Bento Rodriguez, to return to Villa Rica, where we happily arrived on the 28th of April.

Our collections had been considerably augmented since we sent away the cases from Sorocaba, and it was necessary, before we proceeded farther on our journey, to send them to Rio de Janeiro, which was the next coast town. The governor-general, Manoel Conde de Portugal e Castro, who had already had the kindness to countersign our passports for the diamond district, and to give us letters of recommendation, acquired fresh claims to our gratitude, by promising to address our collections to the King of Brazil, to be forwarded to his majesty the King of Bavaria. We thus enjoyed the advantage, that our chests would not be subject at the frontier custom-houses to be opened and examined, to the great injury of our collections. It was not without profound emotion that we left this romantic country, and the kind and hospitable inhabitants of Villa Rica, to proceed from the land of gold to that of diamonds.

## NOTES TO CHAPTER III.

Mr. Von Eschwege gave the first account of the occurrence of the chromate of lead in Brazil, in Baron Von Moll's Annals of Mining, vol. iii. No. 3. Mr. Zinken gave more particulars respecting it in Eschwege's Account of Portugal and its Colonies. Mr. Eschwege lately mentioned this fossil in his *Geognostisches Gemälde von Brasilien.* Referring, for the sake of brevity, to the works just mentioned, we add the following observations:—

The numerous specimens lying before us show the chromate of lead of aurora and hyacinth red of different shades. It is generally crystallised, and that in small, and very small, four-sided rather oblique prisms, which, for the most part, are indiscriminately heaped and grown together. This chromate of lead is found on a fine-grained greenish white quartz, to which the oxyde of chromium has not unfrequently imparted a reddish, yellowish, and greenish colour. Next to the crystals of red lead there is an earthy covering of a lemon and orange colour, passing into siskin-green, which appears to have originated in decomposed red lead-ore. Besides this green lead-ore, we found, particularly on the *débris* of the mine of Cujabeira, a lead-ore in detached pieces, from a quarter to an inch in diameter, botryoidal and small reniform, diverging from siskin into olive green, and sometimes into blackish green. Externally, this fossil is dull, occasionally soils; internally, it is of a faint, but almost metallic lustre. Most of the pieces show curved-foliated, distinct concretions, which seldom allow a fresh fracture, which is uneven, and almost imperceptibly flat-conchoidal. The colour on them is a mean between the brown and blue lead-ore, but shows a yellow tinge passing into siskin-green.

Some specimens have cellular and small drused cavities, which are filled either with massive or crystallised red lead-ore, of which also massive pieces are found mingled among them. According to the investigation of two chemists it appears that this green lead-ore, exposed with borax to the blow-pipe upon charcoal, gave a sea-green glass; with alkali, a deep yellow salt; and with silver, a crimson deposit. Treated with ammoniac there was a blue solution, from which metallic copper was immediately precipitated on a steel watch-spring. Hence, it appears that this fossil consists of oxyde of lead, and of copper, and of chromic acid, and consequently belongs to that which occurs, together with the red lead-ore, at Beresof, in Siberia, which was first determined by Mr. Hausmann, analysed by Berzelius, and which is now called vauquelinite.

The rock, in which the granular quartz, which contains the crystals of the chromate of lead, forms veins, is a clay-slate which owes its origin to mica. The predominant colour of it, in the pieces now before us, is bluish and yellowish grey, which, however, next to the quartz veins, becomes light grey, nay, almost pure white. It consists of small scales of mica, more or less adhering to each other, which are soft to the touch, and very friable (resembling the earthy talc). Oxyde of iron and chromium give it, particularly near the veins, a brownish cream and orange yellow. In some places the pearly mica appears in great lustre while the rest of the mass shines only faintly. Compact and loose brown iron-stone, probably originating in pyrites, accompanies the red crystals. As well in the roof as in the base of the quartz veins, the mica scales assume the character of the scaly and earthy lithomarge in which the topazes are found in Capâo and Lana. Though generally white, it is often tinged yellowish and greenish by oxyde of chromium, sometimes it alternates in thin strata with the granular quartz, and approaches the quartz-slate incumbent on this clay-slate. This scaly and earthy lithomarge, together with the friable granular quartz, has given occasion to the notion, that chromate of lead was found in Brazil in soap-stone, in pot-stone, in scaly talc, and in sandstone, and led Mr. Zinken to take the pulverulent coat (earthy lithomarge), which he had remarked, for kaolin. On the whole, we found that the mode of occurring, as well of the red as of the green chromate of lead, at Cujabeira, perfectly coincides with that at Beresof, on the Ural, in Siberia, which grows in quartz veins in the talc rock, mixed with grains of quartz, or, as Pallas expresses himself, on veins of shattered and drused quartz, in a white and yellow brown, soft, rather fibrous * and micaceous clay-rock. The resemblance of the lithomarge of Cujabeira to that of Capâo, in which the topazes are found, appears the more worthy of remark, because Pallas mentions, that topazes are likewise found single and collected, in drused cavities, at Beresof, in Siberia, in the gold veins.

## NOTE 1.

At Antonio Pereira, heavy spar likewise occurs, which is of a greyish white colour, in pieces of a fine and coarse grain, is easily separated, very transparent, and, as Mr. Zinken justly observes (in the account of Portugal and its colonies, p. 26.), bears the same relation to the scaly heavy spar as coccolite does to augite.

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* In the original, *fadenhaft,* fibrous or stringy; but I am unacquainted with the mineralogical meaning of the term. *Trans.*

## Note 2.

In the mine of the guarda môr, Innocenzio, on the Serra de Caraça, and particularly in the diamond district, gold crystals are not uncommon, and several were shown to us which may altogether be referred to two original forms. They are either octahedrons, partly perfect, partly blunted at the corners, or at the corners and edges, and partly tetrahedrons, the edges of which sometimes appear truncated. Twin crystals, or similar conjunctions of single crystals, are sometimes observed. In general, gold is found in Brazil of all the colours and forms hitherto known. The first are bright yellow, brass and greyish yellow, in which last the alloy of silver is so considerable, that the gold-dust acquires a brownish tarnish by oxydation. It is affirmed that platina is sometimes mixed with it, but we ourselves could never ascertain it. With respect to the forms, the loose, roundish, or flat grains are the most frequent, but other configurations are also met with. It is washed out of the sand of several rivers, in particles scarcely visible to the naked eye, among which we observed quartz-sand, partly pure, partly mixed with much mica and lime; we have before us some gold-dust said to be from the capitania of Saint Paulo, which contains also magnetic iron-stone, with grains of cinnabar.

The tapanho-acanga, or the iron-stone flötz, subordinate to the quadersandstein formation, is the secondary bed of the gold, in which its abundance in all forms is astonishing; whereas in Europe this iron-stone formation, considered as a whole, and in its separate members, is very extensive, for instance, in the kingdom of Bavaria, as we have already observed, without containing any traces of gold. In the quartz strata, and beds of the clay-slate, and of the quartz and iron mica-slate, the gold is particularly beautiful, dendritically and reticularly knitted, and aggregated in rows.

From what is called the black gold formation, in which arsenical pyrites, and iron-stone containing manganese occur, we received, besides other forms of gold, also small crystals in cubes. But the most beautiful form of gold is that in iron mica-slate, particularly in the large-foliated, generally undulated-curved, in which pieces weighing several ounces are often found. It cannot but be observed, that in Brazil the gold occurs in such abundance with iron-mica, whereas, for example, at Fichtelberg, in Bavaria, where iron-mica is frequent in quartz, no trace is to be found of it. But in general the crystallisations of gold seem to be more frequent in the primitive than in the flötz mountains (we have not had an opportunity of observing the transition formation).

## NOTE 3.

The kyanite and rhaëticite of the Serra do Caraça is generally bluish grey, passing into light azure, but seldom pure, mostly dirty. We found some beautiful rhaëticite in the Morro de Villa Rica, where however it did not appear in veins, but only in solid pieces of compact quartz. It has there a silver and milk-white colour, passing into peach-blossom, a decided mother of pearl lustre, and is long- narrow- and rather curved-radiated. The common shorl, of which we found casual pieces on this mountain, appears in small, middling-sized crystals, growing close to and over one another, and therefore indistinct. As the superficies of these casual pieces is covered with a red clay, we conclude that it belongs to the formation of the tapanho-acanga. Mr. Von Eschwege mentions also an auriferous shorl rock between his iron mica-slate and the quartz-slate.

# SPECIMEN
# OF
# BRAZILIAN POPULAR SONGS.

### *No. 1. From S. Paulo.*

I.

A caso são estes
Os sitios formosos,
Aonde passava
Os annos gostosos?
São estes os prados
Aonde brincava,
Em quanto pastava,
O gordo rebanho,
Que Alceo me deixou?
  São estes, &c.
São estes; mas eu,
O mesmo não sou,
Marilia, tu chamas?
Espera, que eu vou.

II.

Da quelle penhasco,
Hum rio cahia,
Ao som do susurro,
Que vezes dormia?
Agora não cobrem
Espumas, nevadas,
As pedras quebradas;
Parece que o rio,
O curso voltou.
  São estes, &c.

### III.

Meus versos alegre
Aqui repetia:
O E'co as palavras
Tres vezes dicia.
Se chamo por elle,
Jà não me responde;
Parece se esconde,
Cansado de dar-me,
Os ais, que lhe dou.
São estes etc.

### IV.

Aqui hum regato
Corria sereno,
Por margens cobertas
De flores e feno:
A'esquerda se erguia,
Hum bosque fechado,
E o tempo apressado,
Que nada respeita,
Jà tudo mudou.
São estes etc.

### V.

Mas como discorro?
Acaso podia
Jà tudo mudar-se.
No espaço de hum dia?
Existem as fontes,
E os feixos copados;
Dão flores os prados,
E corre a cascada,
Que nunca seccou,
São estes etc.

### VI.

Minha alma, que tinha.
Liberta a vontade,
Agora jà sente
Amor, e saudade.
Os sitios formosos,
Que jà me agradàrão,
Ah! nâo se mudàrão;
Mudarão-se os olhos,
De triste que estou.
São estes etc.

*By* GONZAGA.

### *No.* 2. *From S. Paulo.*

Qual sara o feliz dia
Em que veja satisfeitas
Doces amanteis promesas
Pela minha Ionia.

### *No.* 3. *From Minas and Bahia.*

Pracer igual ao que eu sinto
No mundo nâo havera
Quando me vejo nos braços
Da minha amante Yayá
O que instantes, Amor nos da,
Meu doce bem, minha Yaya!

### *No.* 4. *From Bahia.*

Foi-se Jozino e deixou me
Foi-se com elle o pracer
Eu que cantava ao lado
Hoje me sinto morrer,
Amor que pode nâo quer valer,
Nâo ha remedio se nâo morrer.

### *No. 5. From S. Paulo.*

I.

Escuta formoza Marcia
Tristes ais do teu pastor,
Sâo ais qu'a dar-lhe ensinou
O Tiranño Deos Amor.

II.

Eu nem suspirar sabia,
Antes de te conhecer,
Mas depois qu'vi teus olhos,
Sei suspirar, sei morrer.

### *No. 6. From Minas and Goyaz.*

Huma Mulata bonita
Nâo careça rezar
Basta o mimo que tem
Para sua alma salvar
Mulata se eu podia
Formar altar,
N'elle te collocarià.
Para o povo te adorar.

END OF THE SECOND VOLUME.

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